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THE

# MEDICAL NEWS.

## A Weekly Medical Journal.

EDITED BY

GEORGE M. GOULD, A.M., M.D.

VOLUME LXVII.

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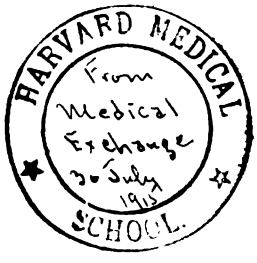


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# THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXVII. SATURDAY, JULY 6, 1895. NO. 1.

## ORIGINAL ARTICLES.

### DIPHTHERIA; ITS BACTERIAL DIAGNOSIS AND TREATMENT WITH THE ANTITOXIN.[1]

BY HENRY W. BETTMANN, M.D.,
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CURATOR AND MICROSCOPIST, CINCINNATI GENERAL HOSPITAL.

IN 1884 Loeffler announced the cause of diphtheria, but the medical world was little interested. Five years later Roux declared that the bacterial diagnosis of suspected cases was of the greatest importance, and Baginsky added further proof, and still the medical world heeded little. In 1894 Roux and Behring announced independently that they had discovered a cure for diphtheria, and in six months the medical world is aflame.

The scientific structure is complete: the etiology first, the bacterial diagnosis second, the prophylaxis and cure the capping-stones. The task before the medical profession is to see if the structure can stand. If it stands, it is the highest achievement of the new medical era, and a glorious and memorable tribute to scientific medicine.

I shall say nothing about the etiologic relation between the Loeffler bacillus and diphtheria. In the minds of all except the ultra-skeptical, the cause of the vast majority of cases of Bretonneau's diphtheria is the Loeffler bacillus; this fact was incontrovertibly demonstrated years ago, and need no longer form the basis of discussion. The questions that concern us to-night are far more practical and more important to us as physicians. They may be enumerated as follows:

1. What clinical significance has the bacterial investigation of throat-exudates?

2. Can diphtheria be cured by the antitoxin?

3. Can diphtheria be prevented by the antitoxin?

4. Is the antitoxin a specific remedy for diphtheria in the sense advocated by Behring, Aronson, and Roux?

1. *The Clinical Significance of Bacterial Investigation of Throat-exudates.* My conclusions are based on the bacterial investigations of 122 throat-cases. These studies were made in the laboratory of the Cincinnati Hospital by Dr. A. H. Freiberg and myself, with the generous assistance of Dr. Charles H. Castle. We are also indebted to the assistance of Superintendent Hendley, who first suggested the investigation. Our methods were copied from those of the New York City Board of Health, and our way of distributing, collecting, and examining tubes was modelled after that of New York. Altogether we examined about 160 inoculated tubes. A majority of the local profession did not avail themselves of the opportunity for diagnosis that was offered. On the other hand, a large number realized the value of the bacterial examination and lent us their support and their interest. The vast majority of the tubes examined were sent to us in January, February, and March of this year.

In all cases we used Loeffler's serum for diagnostic purposes. This is by far the best medium with which to demonstrate the presence of the Loeffler bacillus. Investigators who use glycerin-agar, peptone-agar, or even plain blood-serum cannot expect reliable results.[1] As a rule, we were able to make a diagnosis after the tubes had remained in the incubator from twelve to sixteen hours; and if the inoculation was at all successful, twenty-four hours sufficed in all cases. With some experience it is possible to distinguish diphtheria-colonies from cocci-colonies macroscopically, diphtheria-colonies of sixteen hours' duration looking gray and small as compared with the larger and whiter cocci-colonies; of course, it is best in all cases to resort to microscopic examination with alkaline methylene-blue. Early in January we were puzzled occasionally by the appearance in the cultures of short, thick bacilli, and very long, slender, evenly staining ones. We soon found out, however, that these colonies developed in imperfectly sterilized tubes, and later ruled out all doubt by sterilizing the serum more perfectly. After this we were never seriously puzzled to know whether a tube contained Loeffler bacilli or not. After the statistical report of the New York Board of Health, covering 5611 cases, it might seem superfluous for us to report our series of 122. Yet even so small a series is full of interest and instruction.

The Loeffler bacillus was present in forty-seven cases; of these, eight, or 17 per cent., died. The bacillus was absent from seventy-five cases; of these, three (4 per cent.) died. In one of these fatal cases the examination was made after the disease had existed two

[1] A paper read before the Cincinnati Academy of Medicine, June 3, 1895.

[1] C. Fraenkel: Die Aetiologische Bedeutung des Loeffler'sche Bacillus (Deutsche med. Woch., 1895, No. 11). Also Silberschmid: Münchener med. Woch., Feb. 26, 1895. Compare also the defective results obtained by Vierordt (Deutsche med. Woch., 1895, No. 11, p. 169), by use of plate-cultures of glycerin-agar.

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weeks, and proved negative; in another, on the eighth day, two days before death, and it was also negative. Everyone familiar with the subject knows, and the New York report has sufficiently emphasized the fact, that examinations made quite late in the disease are not reliable, and we may properly exclude these two last-mentioned cases from our consideration. Thus, out of seventy-three cases in which no Loeffler bacilli were found under proper conditions of examination, only one proved fatal, or nearly 1⅓ per cent., while 17 per cent. of those died in whom the Loeffler bacillus was found. This teaches one important lesson, viz., the presence of the Loeffler bacillus in the throat adds very seriously to the gravity of our prognosis.

But mortality is not the only test of severity. A few weeks ago I sent postal cards to the physicians who had had cases examined, asking for clinical data, laying special stress upon the duration of the disease, the presence of alarming symptoms, the occurrence of sequelæ and complications, and the condition of the heart. I received complete data concerning forty-one cases, in which the Loeffler bacillus had been found; in eighteen of these (just 40 per cent.) the physicians reported the patients as *dangerously* sick, in many cases from weakness of the heart; of the non-diphtheric cases, aside from the three that died, *only one patient* was reported as having been in danger, and that one from laryngitis; *i. e.*, seventy-one out of seventy-five cases from which the Loeffler bacillus was absent ran a mild course without arousing any alarm.

Can anything be more convincing than that the bacillary sore-throat is a very different disease from the non-bacillary sore-throat? So much for gross figures. I think, however, that examination into the details of several series of cases will prove still more striking and show still more forcibly the value of bacterial diagnosis.

On January 5th a tube was sent with the diagnosis of tonsillitis. The physician in charge said that there was no suspicion of diphtheria, and the patient was not isolated. Two days later the child's brother contracted an angina. Bacterial examination of the first case revealed the presence of many cocci and few Loeffler bacilli; the second throat contained almost a pure culture of Loeffler bacilli. Both children were markedly prostrated, out of all proportion to the apparent throat-lesion; the first child was weak for a month after recovery; the second child was in great danger from heart-failure for a week, and suffered later from paralysis of the pharyngeal and ocular muscles.

On February 14th a tube was sent with the diagnosis of severe tonsillitis. Examination revealed almost a pure culture of Loeffler bacilli. The case ran a very mild and favorable course for four days; on the fifth the patient, sixteen years old, died very suddenly from heart-failure.

In January a tube was sent with the diagnosis of non-diphtheric croup. No membranes were visible in the throat, and the temperature was normal. Intubation was performed. Bacterial examination revealed the Loeffler bacillus; stenosis returned, tracheotomy was performed, large tough membranes were found occluding the trachea, and the child died on the ninth day, after extension of the membrane to the lungs.

In March a tube was sent, and Loeffler bacilli were found in abundance. The first physician in attendance had diagnosticated catarrhal laryngitis, and had let the case run on from bad to worse for several days. He was then discharged. The second physician immediately had the case examined microscopically, and intubation was performed, but death followed after sixteen hours.

In all of these cases early bacterial examination would have thrown much light on the diagnosis and prognosis, and lives might have been saved. Other similar cases might be cited, but those detailed are sufficiently striking to show the great value to the clinician of bacterial investigation.

A few words in regard to the fatal cases in which no Loeffler bacilli were found. One was in a child, fourteen months old, that suffered from purulent coryza for two weeks, laryngeal stenosis and profound sepsis being present on its admission to the hospital. Only cocci were found after a minute examination. The antitoxin was used, and the child revived considerably. Cultures were made at intervals of two days, and no Loeffler bacilli were ever found. The child died seven days after admission to the hospital.

CASE No. II occurred in a family in which several members suffered from true Loeffler diphtheria. All the cases were malignant, and this one fatal, although no Loeffler bacilli were found. Only one culture was made, and I am inclined to believe that I must have made an imperfect examination, as Loeffler bacilli were found in other members of the same family.

CASE No. III was the one referred to. A six-months-old baby suffered with large extensive membranes in the throat; no culture was made until the eighth day, two days before the fatal issue. I am not informed as to whether the cause of death was croup or sepsis. There is no doubt that some cases of diphtheria occur in which Loeffler bacilli play no *rôle*. Fischer[1] reports a case of septic diphtheria in which cultures made daily for seven consecutive days failed to discover the Loeffler bacillus, and even a post-mortem culture revealed nothing but cocci. Fraenkel[2] admits also that there is such a thing as coccus-diphtheria, although its occurrence is quite rare. For the present we must simply shrug our

[1] N. Y. Med. Rec., April 6, 1895, p. 420.
[2] Loc. cit.

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shoulders at these rare and unfortunate cases, and leave their explanation to further investigation.

I approach with some diffidence the subject of the therapeutic effects of the antitoxin. Veterans in medicine have tried it in a large series of cases, and have been reticent as regards the scientific value of their results. Rapidly, however, a large literature on the subject is accumulating, and it behooves us at least to keep in touch with the advanced thought. No one, I think, can follow what has been written on the subject during the past six months and regard it with indifference. Certainly no one can read the calm judicial testimony of medical experts in all parts of the world that classes of cases that formerly died do now recover, that a smaller percentage of cases die than formerly, and that severe cases now recover without need of operative interference, without wishing in his heart that such testimony is true. When men of world-wide reputation range themselves one after the other on the side of the new remedy we are compelled, with all our natural skepticism, to be encouraged. The names of Virchow, Escherich, Ganghofner, Ranke, Vierordt, all on one side, are strong testimony of themselves. In February of this year Foster[1] collected statistics of 2740 cases treated with antitoxin; of these 18.5 per cent. died; also of 4445 cases treated without antitoxin; of these 45 per cent. died.

I shall not load down your minds with bald statistics. Nothing is more tiresome or unprofitable. Since January of this year I have had occasion to observe closely seventeen cases of diphtheria. During February and March Dr. Forchheimer very generously placed his diphtheric patients at the City Hospital under my charge, and I am greatly indebted to him for the cases treated in that institution.

In January two brothers were admitted to the hospital suffering from a very severe form of diphtheria. The younger brother, four years old, had been sick eight days and had a very intense nephritis, with weak heart and complete anorexia. Many Loeffler bacilli were present; two days later they were absent from the throat. No antitoxin was used, owing to the condition of the kidneys and the advanced stage of the disease.[2] The nephritis grew worse daily, notwithstanding active treatment, and the child died twelve days after admission. The older brother, aged eight years, had contracted the disease three days before admission. At first he presented indications of only a moderately severe pharyngeal diphtheria and received tonic treatment. Soon, however, he developed a marked nephritis, like his brother, and five days after admission had severe symptoms of laryngeal stenosis; his temperature rose to 103.8°, and his condition became very critical. Ten c.cm. of the Roux antitoxin were injected in the interscapular space. During the next twenty-four hours the temperature fell steadily, the pulse-rate and frequency of respiration remained about the same, and the dyspnea was markedly moderated, recurring only for short intervals. The further course was favorable, the albuminuria lasted two weeks, Loeffler bacilli persisted only two days after the injection, and the boy made a slow but complete recovery. This, my first case, made a very favorable impression on me.

A week later a child aged fourteen months was brought to the hospital in an apparently moribund condition; the pulse was scarcely palpable; opisthotonos was marked, and the fetid odor from the throat scarcely endurable. The mother at first refused treatment, saying she did not wish the child uselessly tormented, and death seemed a question of only a few hours. We injected, however, 5 c.cm. of Behring's antitoxin, No. 2, and were much astonished to see in the course of twelve hours a remarkable change in the child's condition. It now sat up in bed and took nourishment greedily, but during the course of the day relapsed into its former condition. Injections of the antitoxin were repeated twice, both times causing a very marked and unmistakable change for the better. On the fourth day we were inclined to make a favorable prognosis; the heart, however, became very weak, the respirations rapid, fetid diarrhea set in, and the child died with high fever on the seventh day. Repeated examinations in this case failed to reveal Loeffler bacilli. Here was a case ending fatally, which, nevertheless, afforded to the few of us who witnessed it the greatest encouragement regarding the value of the antitoxin.

A few days later five children were placed under my charge at once. Two sisters, Mary and Gertrude E., aged respectively six and nine years, had extensive exudations with almost pure cultures of Loeffler bacilli, and yet the local and constitutional symptoms were so slight that no treatment was instituted, except rest in bed and light diet. Both cases developed albuminuria of moderate degree, which persisted sixteen days.

Three other sisters, aged respectively four months, four years, and six years, all had extensive exudations in which the Loeffler bacillus was demonstrated. One case ran so favorable a course that no antitoxin was used; on the second day the infant's temperature rose to 103 8° and the membranes extended. Five c.cm. of Behring's No. 2 were injected at 10 P.M., and the change for the better began in a few hours, and after that the temperature remained below 100° F., and no threatening symptoms recurred. The oldest sister received two injections of the antitoxin, each 5 c.cm., which seemed to affect the course of the disease very favorably. These children also had albuminuria lasting two weeks, the one in which no antitoxin had been used no less than the others.

I shall not detail all the cases treated. One child, aged ten years, received 10 c.cm. of the antitoxin for laryngeal obstruction present on admission, and

[1] Foster: THE MEDICAL NEWS, Philadelphia, Feb. 2, 1895.

[2] Neither of these conditions, however, is a contraindication against the use of antitoxin.

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died four hours afterward from sudden increase of stenosis. All the other cases recovered, some with and some without the antitoxin. Altogether, nine cases received the antitoxin; two of these died, as already recited. Of the seventeen cases observed, three died, representing a mortality of 17.6 per cent.

The mortality in the city during January, February, and March was 26 per cent. I do not lay any stress on the results obtained by us in the hospital. The number of cases is too small to be convincing. All who saw the cases treated with the antitoxin felt sure that we had in our possession a wonderful remedy. This subjective feeling of trust in the value of the antitoxin is almost universal among those who have tried it in any number of cases, and speaks more in favor of the remedy than the published figures. I shall reserve for another occasion a critical estimate of the antitoxin-literature thus far published.

Of some things I am convinced:

1. That the antitoxin does undoubtedly affect favorably a large number of diphtheria-cases.

2. That it is the duty of physicians to use the antitoxin early in every case of severe diphtheria occurring in children.

3. That the mortality from diphtheria is destined to be largely diminished by prompt use of the antitoxin.

I cannot urge upon physicians too strongly to use the antitoxin *early* in their cases of diphtheria. The testimony is universal that the earlier the remedy is used the more certain is its curative effect. In Foster's table, of the 44 cases injected on the first day none died; of 106 cases injected on the second day 3 died. Later the mortality ranged from 10 per cent. to 40 per cent. In Ganghofner's table,[1] of 68 cases treated during the first three days 5 died; of 42 cases treated after the third day 10 died. In Kossel's well-known table, of 82 cases treated during the first four days only 2 died; of 35 cases treated after the fourth day 11 died. To wait for sepsis or laryngeal stenosis before using the antitoxin is folly. The chances of success are greater the sooner the remedy is used. All observers agree that when the antitoxin is used in pharyngeal diphtheria the larynx is not thereafter affected.

Bad effects from the antitoxin we did not see, although about twenty injections were made. I prefer the fleshy part of the thigh as the seat of injection. Pain was remarkably slight or wholly absent, and absorption took place in a very few minutes. One child had a slight erythema after the fifth day.

*Can we prevent diphtheria with the antitoxin?* The published reports of prophylactic injections are not very encouraging. As the antitoxin does not prevent the growth of the bacillus, it is hard to understand how it can prevent diphtheria. It has been noted that relapses after cure by the antitoxin are not infrequent; this itself is a strong argument against belief in any prophylactic virtue of the new medicine. As a matter of fact, diphtheria is not a highly contagious disease. Henoch says that in seventeen consecutive years only one attendant caught diphtheria in his diphtheria-pavilion. It is, therefore, a very difficult question to decide, especially as diphtheria occurs not infrequently in those prophylactically injected. Brewer[1] injected two children for the purpose of prophylaxis. One of them developed a membrane the next day, the other in six days after inoculation. Richter[2] made 72 preventive injections, and 7 of the persons were nevertheless affected. Sonnenburg[3] made 16 injections; diphtheria occurred in 2 of the cases. Hager[4] immunized 35 children and 3 took sick. Brunstein[5] immunized 28 cases and 1 took sick. Pearl[6] immunized 67 persons between the ages of four months and fifteen years; 13 contracted diphtheria and 2 died.

Summing up these reports we find that of 220 persons injected, 28 (12.7 per cent.) were nevertheless affected. This is certainly not a good showing. If one out of eight people had smallpox, Jenner's name would not be celebrated as it is to-day, and smallpox is far more contagious than diphtheria. On the whole, we are compelled to say that evidence of the value of prophylactic injections of the antitoxin is still wanting.

*Is the antitoxin a specific against diphtheria in the sense advocated by Behring and Roux?* By the question we mean, does the antitoxin neutralize the effects of the disease in the system and thereby insure recovery? In one thing all authors agree, *i.e.*, that the antitoxin does not kill the Loeffler bacillus or prevent its further development. In several of our hospital-cases the bacilli persisted in the throat for days and even weeks, notwithstanding the use of the antitoxin. Other observers have demonstrated that the bacilli not only persist in the throat but also retain their virulence for guinea-pigs.[7] Therefore the antitoxin cannot be called a specific for diphtheria in the sense that quinin is a specific for malaria. It certainly does not destroy the cause of the disease.

Mercury is called a specific for syphilis without

[1] Ganghofner: Prag. med. Woch., 1895, Nos. 1, 2, 3.

[1] Brewer: THE MEDICAL NEWS, Philadelphia, Jan. 19, 1895.
[2] Richter: Deutsche med. Woch., 1895, No. 7.
[3] Sonnenburg: Deutsche med. Woch., 1894, No. 50.
[4] Hager: Therap. Monatsh., February, 1895, p. 91.
[5] Brunstein: Wiener klin. Woch., 1895, No. 3.
[6] Pearl: Ibid.
[7] Virulence for guinea-pigs should by no means be made the test for human beings, as it is in no sense conclusive. Each species of animal is a law only unto itself.

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presumably destroying the cause of syphilis; in some way it neutralizes for the time being the syphilitic virus. It is difficult to say just to what extent this is true of the antitoxin of diphtheria. The children seem certainly to improve under its use, as every eye-witness can testify. And yet there is much evidence to show that the poison is not neutralized. Diphtheric nephritis and post-diphtheric paralysis are commonly assumed to be the result of the action of the diphtheric virus on the kidneys and nervous system respectively. Certainly the poison that leads to nephritis and paralysis is not neutralized by the antitoxin; so in the sense of mercury for syphilis, we can scarcely speak of the antitoxin as a specific for diphtheria. In a word, all our theorizing about the antitoxin is as yet without avail. The clinical fact is plain that a larger percentage of cases recover with it than ever did under any other form of treatment. This is the one practical fact, testified to almost universally, that makes the use of the antitoxin a matter of duty in cases of diphtheria in children.

And now a few words regarding the relations of the city to the question of the bacterial diagnosis of diphtheria. Modern custom has relegated to the city officials all over the world the task of dealing with the health-questions of the respective cities. The more advanced cities in Europe and America have already established disinfecting bureaux and stations for the destruction or disinfection of contagious material. Cincinnati has done little that is efficient in that regard. New York was the first city in the world to make adequate arrangements for the control of diphtheria and tuberculosis by means of bacteriologic examinations. The fact has been made perfectly plain that only by repeated bacterial examinations of the throat can we test whether a case of diphtheria has became free from infecting power or not. It is known that Loeffler bacilli remain in the throats of diphtheria-convalescents for many days and even weeks. One series of examinations at the City Hospital revealed the presence of the germ up to the fortieth day of convalescence; and repeatedly have we found the germ at the end of the third week. Nothing is more evident than that our present mode of placarding houses is not only unjust to the occupants, but also inadequate for public safety; many a family is seriously discommoded, its children kept from the schools—because the physician assumed a simple angina to be diphtheric. It has been my fortune more than once during the past five months to see cases which other physicians had called diphtheria, and which proved to be non-diphtheric. Patients have a right to demand bacteriologic examination before submitting to weeks of isolation, often with considerable detriment to business and always to convenience and comfort. The *ipse dixit* of the attending physician is by no means sufficient, be he who he may. On the other hand, placards are removed from houses four days after the physician signs a certificate that the patient is well, no matter whether the patient still be a source of public danger or not. The only possible control is the bacterial control—and it is now a matter of public necessity that every municipal health-department should be under the management of a professional and expert bacteriologist, with assistants and clerks who should devote all their time to the work in hand.

Cincinnati has recently applied salve to its own conscience by providing for the expenditure of $500 to pay for apparatus, office-work, and the salary of the city bacteriologist; while everyone knows that that sum is ridiculously inadequate to supply what is needed. Other cities have outstripped us. Brooklyn has adopted the same system as New York. In Boston the work has been done for the past seven months. In November and December of 1894 1002 cultures were examined by the city bacteriologist, who was relieved of all other work; in January, 1895, 842 cultures were examined. Boston has also provided for the manufacture of antitoxin, and has seven horses under treatment. The Philadelphia Board of Health has appropriated $15,000 to establish a bacteriologic bureau. In St. Louis the City Board of Health has for some months been examining for tubercle-bacilli and Loeffler bacilli, having established eighteen stations in the city for the receiving of specimens. New Orleans has for more than a year had a fully equipped and active bacteriologic bureau. Cleveland is supplied with antitoxin from the Western Reserve University. Buffalo has two professional bacteriologists who devote all their time to the work. Tubes for diphtheria-diagnosis are distributed to the thirteen police-stations of the city, and examinations are also made for tuberculosis. The tap-water and reservoir-water are examined daily; the mik and ice at proper intervals. Detroit has begun the work of bacterial diagnosis, and Indianapolis will fall into line this autumn.

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## *COMMISSIONS TO PHYSICIANS UPON THE SALE OF ORTHOPEDIC APPARATUS, FROM THE MANUFACTURER'S STANDPOINT.*

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IN the *Philadelphia Polyclinic* for September, 1894, I published a paper entitled "Can Physicians Honorably Accept Commissions from Orthopedic Instrument-makers?" in which I presented the subject from the standpoint of the physician. The position taken in that article is concisely stated in

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the closing paragraph, in which I said: "If it is honest so to defraud the patients submitted confidingly to the care of the physician, it is just as right to ignore totally every point in the Code of Ethics that indicates to the contrary. If it is dishonest, and what physician can dispute it? are we not obliged, by the very words and spirit of the Code, so to proclaim it?"

A further consideration of the subject demonstrated that there is another standpoint from which the subject should be considered, namely, from that of the manufacturer or the business-man. I therefore sent a copy of my paper referred to, to a large number of manufacturers of orthopedic apparatus, artificial limbs, and trusses, with the request that they favor me with their views and opinions candidly expressed. The replies, from which extracts are used, form the basis of this article and are of great value in showing that too often physicians permit themselves to be classed, as Dr. Solomon Solis-Cohen has tersely denominated, "sales-agents."[1]

Illustrative of this I quote from the Winkley Artificial Limb Co.:

"We receive almost daily several letters from physicians, in apparently good standing, asking us how much commission we will pay them if they will send us a patient or an order for an artificial leg, and that they would like to have the limb, if purchased, either sent directly to them with one bill in full to show the patient, and one to them personally, less the commission; or that the limb be sent directly to the patient for the full amount and the commission sent to them. We recently received a letter from a surgeon having a large practice which read as follows: 'I now have five patients with amputated legs who are either ready or soon will be to wear artificial legs. I am going to have them place their orders with the firm that will pay me personally the largest commission. I do not care where they purchase their limbs so there is something in it for me. If you will pay me a larger commission than other firms, I will have them each and all place their orders with you.' We simply answered the latter by stating that we allowed no commission whatever, etc."

If this were a single instance, it would properly be considered as coming from some contemptible man besmirching the profession, the dignity of which it was his duty to uphold, and consequently beneath notice. In a number of replies from manufacturers, however, it is stated that they have had numerous requests from physicians for commissions; therefore the whole matter appears to come back to the starting-point, that in reality it is the physicians that make these commissions necessary. This view is substantiated by Sharp & Smith, who state:

"Would say if commissions are paid to them it is because it is agreeable to the physician who controls the order. We believe the whole matter rests with the physician."

George R. Fuller, of Rochester, New York, says:

"The custom amongst the profession of anticipating, accepting, and, I might say, exacting a commission on artificial limbs, trusses, etc., as a rightful legitimate fee, has become nearly universal, and I am glad to know that there is one of them who has the courage to brand the custom as a fraudulent one, an outrageous breach of the faith and confidence extended by the patient, and a violation of the Code."

The object of this paper is to reach those physicians who may not fully comprehend the importance of upholding the dignity of their profession, and who are acting as "sales-agents" in obtaining money under false pretence, and exposing the profession to just censure.

Mr. Frederick M. Bush says:

"I would divide physicians into three classes in the matter of orthopedics. First, those who know what they wish to do and how to do it, including the general mechanical design. Second, those who know what they want to do, but don't know how to do it, and leave the designing of the appliance to the instrument-maker. Third, those who don't know anything about it. For the first class, and the smallest, it is sufficient that the instrument-maker knows enough to follow the measurements and directions given, with perhaps an occasional suggestion from him on points strictly of mechanical detail. With such a physician it is ordinarily unnecessary for the instrument-maker to see the case; consequently all the business is transacted through the physician and the appliance is charged directly to him. Now his bills with his instrument-maker are probably settled monthly, and if his patients pay on the same terms, well and good. But suppose he is not always so fortunate, and some of his accounts run three, six, twelve months, and some he never gets. Physicians' bills are not always collected; where does he get the interest or make up the deficiency? Must he lose it out of his pocket because he has been unfortunate enough to have to advance cash? Is it not better and more equitable that he charge sufficiently more for such appliances to enable him to have a sort of sinking-fund from which he can reimburse himself for losses so caused? It seems so to me, and where is the need of secrecy? Business is business the world over, a church or a doctor's office, a theater or a dry-goods house should all be run on a business basis, and, though the superficial forms of advertising and dispensing commodities may differ, the same sound principles underlie success in any case.

"But does a solid conservative business concern take risks without hope of remuneration? Assuredly, no. *Somebody* has to pay; and the pay is proportional to the risk; and there is no thought of concealment.

"The second class of physicians should be governed by the rules which govern the first and third class. The more ability the physician requires of the instrument-maker and the less financial risk that is run, the less pay should the physician expect and the more should the instrument-maker get out of the work. The third class is not very hard to dispose of, because if they don't know anything, they can't do anything, and if they can't do anything they are not worth anything. Of course, a good many of the second class and all the third class had better not fool with orthopedics."

Of the duties of physicians to each other and the profession at large, Art. I ("Duties for the Support of Professional Character") of the Code of Medical Ethics says:

[1] "Shall Physicians Become Sales-agents for Patent Medicines?" by Solomon Solis-Cohen, M.D. Read before the Philadelphia County Medical Society, April 27, 1892.

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"Every individual, on entering the profession, as he becomes thereby entitled to all its privileges and immunities, incurs an obligation to exert his best abilities to maintain its dignity and honor, to exalt its standing, and to extend the bounds of its usefulness."

Art. II.:

"There is no profession from the members of which greater purity of character and a higher standard of moral excellence are required than the medical; and to attain such eminence it is a duty every physician owes alike to his profession and to his patient. It is due to the latter, as without it he cannot command their respect and confidence; and to both, because no scientific attainments can compensate for the want of correct moral principles."

The following expressions of opinion condemning commissions are worthy of consideration:

"We would be glad to see all commissions abolished, as it opens the door to many methods which are rank injustice to patient, merchant, and doctor."—C. W. WHITE & CO.

"We have never under any circumstances allowed a commission on apparatus or appliances to anybody, in a business career of over fifty years, although we have had numerous requests to do so, and have likely lost a number of cases in consequence."—J. H. GEMRIG & SON.

"I wish to inform you that we are heartily in sympathy with the stand you have taken concerning this subject. We believe that the practice, prevalent as it is, of paying and receiving commissions, either from a business or professional standpoint, is radically wrong."—THE WINKLEY ARTIFICIAL LIMB CO.

"A physician has a right to be paid for his services, a lawyer his fee, a real-estate agent his percentage, a merchant for his ware. But when a physician is paid for his services and then demands a commission for sending his patient to an instrument-maker for an appliance, to such Dr. Solomon Solis-Cohen's term 'sales-agent' is properly applied. I have been struggling against it for years and probably lost the trade of numerous doctors on this account."—WILLIAM AUTENRIETH.

"We have read your pamphlet with interest and think the salient points well taken."—J. C. SCHNOTER & SON.

"It gives us great pleasure to indorse your views in regard to physicians taking commissions from instrument-makers. The correction of this abuse will enable all interested to retain their self-respect."—D. W. KOLBE & SON.

"I have never conducted my business on any percentage plan, and, unless I am requested by the physician, never pay him any. I have met with not a few who have asked for 'their' percentage, and have paid it rather than lose their influence."—A. GUSTAV GEFVERT.

"I enjoy the patronage of many a doctor who desires the welfare of his patient only, but also others who will not advise the use of my truss without expecting a commission. What will a man in my position do? Say no? I cannot well afford to give a commission, but losing the sale is out of the question on account of the influence felt afterward."—H. KLINGER.

"We do not offer commissions to physicians; however, when demanded, we are obliged to comply. When he orders an article and it is supplied by us as a piece of merchandise, it is sold as such; but when we must fit it, then in a business sense it is not mercantile to underhandedly offer or give a share of the profit."—ANONYMOUS.

"It seems to us that surgical instrument-makers are about the last ones whose opinions toward the rest of the world are of any account on this subject. No one believes more fully than we in the old saying, 'Let him who is guiltless throw the first stone.' Imperfection pervades mankind to such an extent that it is not reasonable to require absolute, simple purity in any one respect. Moreover, that which disposes of the whole subject, in our minds, is that the medical profession, as a whole, occupies in the social body a position so respected that it behooves itself only through its properly constituted bodies to lay down each and every feature of its Code of Ethics."—JOHN REYNDERS & CO.

"A few years ago I reduced the prices of artificial limbs about one-third and made an effort to keep the prices unvarying, without reduction or commission to anyone. I soon found that in order to get any business from the profession it would be necessary to allow a discount, and I have since made a practice of discounting 10 per cent. from the quoted prices on artificial legs. Taking a financial view of it, I am satisfied that it was a mistake to reduce the prices. I believe that I could more easily sell an artificial leg through the average practitioner at $100 with a 25 per cent. discount than I could by placing the advertised price at $60 or $70 with a 10 per cent. discount, with every assurance that the construction of the limbs would be the same.

"It is unquestionably true, however, that many physicians give the patients the benefit of the discount. Knowing that it is the rule for physicians to expect a commission or discount from the published prices of their products, it is perfectly natural that instrument-makers should make provision for it. These abuses are the result of the growing selfishness and corruption of the age, which, to a greater or lesser degree, enter into all classes and professions, and it will undoubtedly continue to increase so long as the possession of wealth is the chief ambition of mankind."—GEORGE R. FULLER.

"In some instances where physicians claimed that they had been allowed concessions of this nature by other instrument-manufacturers, I granted them. To such an alarming extent has the practice been carried that patrons have become aware of it (as they justly should) and have asked me to give them the benefit of the physician's commission. Requests of this nature, on many occasions, have put the physician, as well as myself, in a questionable position. Considered either from a professional or a commercial standpoint, the practice, I am convinced, is a most reprehensible one, and an immediate, earnest, honest effort should be made for its abolishment."—WILLIAM SNOWDEN.

Only three manufacturers have frankly and candidly written advocating the giving and receiving of commissions, and they do it by classing physicians, drug-houses, instrument-houses, and commission-houses as their profitable sales-agents.

"The legitimacy of authorizing drug-houses, instrument-houses, and commission-houses to obtain orders upon commissions has always been recognized and has never been placed within the pale of criticism. It has proved to be the most economical way by which articles of great benefit, service, and necessity can be made obtainable, with the least inconvenience to the parties needing them. Commissions are granted as compensation for time and labor expended in taking measurements, attending to the details of ordering goods, receiving them when finished, and properly delivering them to the parties for whom they are intended, and not as a bribe for favoritism, as I construe your paper to imply. I cannot see why physicians should not have the same privileges and obtain the same compensation if they perform the same services, especially as the commissions allowed do not affect the cost of purchase to the wearer. There is one strong argument in favor of granting com-



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missions to physicians which should not be lost sight of, that is, that a very large proportion of physicians who receive commissions on orders for artificial limbs turn those commissions over to their patients, and thus place the cost of an artificial limb at a lower price than the patient would be able to buy if he bought directly from the manufacturer or if he passed the order through a commission-house, druggist, or shopkeeper."—A. A. MARKS.

"After duly considering the subject I will give you my candid opinion in the matter, 'Can Physicians Honorably Accept Commissions from the Manufacturers to Whom They Send Their Patients?' They can do so in many cases without the patients paying one cent more for the article than they would if they purchased it themselves. My opinion being based upon the following facts: The manufacturer produces an article which he finds he can produce at a certain price; to that he must add at least twenty-five per cent. so that he will have a profit, as it will cost him at least ten to fifteen per cent. to sell the article by agents, advertising, etc. Now we have the wholesale price. To give the retailer a profit there must be added another twenty-five per cent. on the wholesale price so that he can live. Now this twenty-five per cent. that is put on to protect the retailer is generally given in part, or the whole of it, to such people that can bring you trade, which people are generally considered by the manufacturer as his agents."—CHARLES A. BICKEL.

"Being a member of the noblest profession in the world, you are aware of the fact that, though physicians frequently go to considerable trouble in getting an apparatus made which will suit the case, they quite often receive but little if any remuneration for their services. This being the case, we believe that they are entitled to a commission, providing the patient or his relatives can afford to pay a good price for the apparatus. Should the patient and his relatives, however, belong to that class who are obliged to work hard for their daily bread, we believe that it is the duty of the attending physician to notify the manufacturer to that effect, renounce his commission, and leave the whole matter to the judgment of the manufacturer."—THE R. HYDE CO.

The relative position of physician and manufacturer is very difficult to define either from a professional or manufacturer's standpoint, for the reason that comparatively few physicians are sufficiently familiar with mechanics to order definitely an apparatus, or adjust it after it is made. Therefore the orthopedic-apparatus maker cannot be classed exactly like the apothecary or manufacturer of pharmaceutic preparations—nor can his services be entirely dispensed with by those physicians who even dispense their own prescriptions.

For instance, a physician having a patient requiring some form of apparatus, is very likely to send the patient to the manufacturer with a note saying, in effect: "I know my patient requires an apparatus of some kind, and I will ask you to apply what you think will accomplish the desired purpose." The physician's act in such a case would be to make the instrument-maker prescribe for the patient, *i.e.*, to practise medicine, but without a licence to do so. The instrument-maker, imbued with the idea that the physician does not wish to direct or prescribe mechanical appliances, is ready to assume full charge of the patients sent to him by a physician or coming to him through some other patient.

Many patients remain under the care of the instrument-maker for periods of months and years, never once having their physician see them to decide whether the mechanical requirements of the case are being properly fulfilled. Instrument-makers have told me that in cases, for instance, of rachitic bow-legs, when a correcting apparatus was applied and the patient sent back to the physician for approval, that he has told the patient to go to the instrument-maker if the apparatus got out of order. I have known cases of this kind to wear an apparatus for a year without any adjustment whatever, and yet is it not natural to suppose the growing child would change and improvement in the deformity would demand frequent adjustment which should be directed by the physician?

Many truss-makers tell me that they consider it impossible for physicians accurately to prescribe or adjust a truss because they do not carry a large stock from which to select. If this is true, it is difficult to understand how a physician can accurately adjust a splint for a fracture or a pessary for a deflected uterus. Again, there are instrument-makers who deprecate this assumption of authority. Mr. Frederick M. Bush, for instance, says:

"As to the instrument-maker turning doctor: He has no more right to do so than has the doctor to become instrument-maker. The functions of the two are totally different, and while the one may have ability of as high an order as the other, their educations so differ that they cannot become one and yet retain highest efficiency in either sphere. The physician should know the *mechanical theory* and the *therapeutic details*; the instrument-maker should know the *therapeutic theory* and the *mechanical details*. The physician takes the responsibility of prescribing the right thing; the mechanic takes the responsibility of correctly making the physician's prescription. A man brought in a steam whistle to have repaired and at the same time said he wanted me to make a brace for his child. He would not go to a physician, but wanted a brace after his own ideas plus what I might suggest. All right, said I, I am not repairing many whistles nowadays, but I will fix your whistle and make your brace, but when they are both done I don't care whether you put the whistle on the engine and the brace on the child, or whether you put the brace on the engine and the whistle on the child. I wash my hands of the whole matter. I don't want to play with things I don't understand, and it seems to me no one else should do so simply for the money there is in it. Outside of the honor and morality of the thing, it looks to me like very poor and shortsighted business, though I am well aware that the general public is fearfully gullible; however, 'you can fool some of the people all the time, and all the people some of the time, but you can't fool all the people all the time.' And when the instrument-makers try to do that, it results in their being found out by the intelligent public and winning the distrust and dislike of the decent physicians who would otherwise be their patrons."

The proper relationship of patient and physician is clearly defined in reference to all other therapeutic measures, and, by inference, also in reference

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to mechanical appliances, both by the Code of Medical Ethics and by the medical laws of the various States. Sec. 15 of the medical laws of Pennsylvania states:

"Nothing in this act shall be construed to interfere with the manufacture of artificial eyes, limbs, or orthopedical instruments or trusses of any kind, or fitting such instruments on persons in need thereof."

The three conspicuous features of this clause are, first, that the medical laws of this State must not interfere with the manufacture of these instruments referred to. Second, there shall be no interference with the fitting of these appliances, presumably by the maker or seller. The third feature describes the class of people for whom the appliances are made and upon whom they are to be fitted without interference "on persons in need thereof.

The question as to who is to decide what persons are in need of appliances is necessarily not discussed, for the clause referred to is part of an act, a part of the title of which says "to provide for the examination and licensing of practitioners of medicine and surgery, to further regulate the practice of medicine and surgery."

For example, Sec. 9 of the laws of Arkansas says:

"That any persons who shall prescribe or administer medicine for or shall in any way treat diseases or wounds for pay shall be deemed physicians and surgeons under this act, and therefore entitled to all the privileges and penalties which are defined by the law."

With different wording, but the same idea, the same condition exists in Arizona, California, Colorado, Delaware, District of Columbia, Illinois, Iowa, Minnesota, Missouri, Montana, Nebraska, New Jersey, New Mexico, New York, North Dakota, Oklahoma, Oregon, Pennsylvania, South Dakota, Utah, Vermont, Washington, West Virginia.

Georgia is especially explicit in Sec. 2 of its medical laws:

"Be it further enacted, that for the purpose of this act the words 'practise medicine' shall mean to suggest, recommend, prescribe, or direct for the use of any person any drug, medicine, appliance, apparatus, or other agency, whether material or not material for the cure, relief, or palliation of any ailment or disease of the mind or body, or for the cure or relief of any wound, fracture, bodily injury, or other deformity, after having received or with the intent of receiving therefor, either directly or indirectly, any bonus, gift, or compensation."

If these extracts from the medical laws of twenty-five States mean anything, they mean that when a patient goes confidingly to a physician it is for the reason that the patient believes his physician to be of that high order that everyone esteems and honors. He naturally believes that in the event of his physician not feeling sufficient confidence in his own knowledge, experience, or ability, he will consult with some other physician, and that he will then direct, prescribe, or order such form of remedial measures as will be of benefit in the patient's case. He should not believe, nor should he have cause to believe, that his physician will order for his patient mechanical appliances from that manufacturer who will secretly pay him the largest commission. Equally reprehensible is it to permit a mechanician to endanger the life and health of any patient by prescribing apparatus, the requirements for which can only be disinterestedly comprehended by one learned in the laws of disease.

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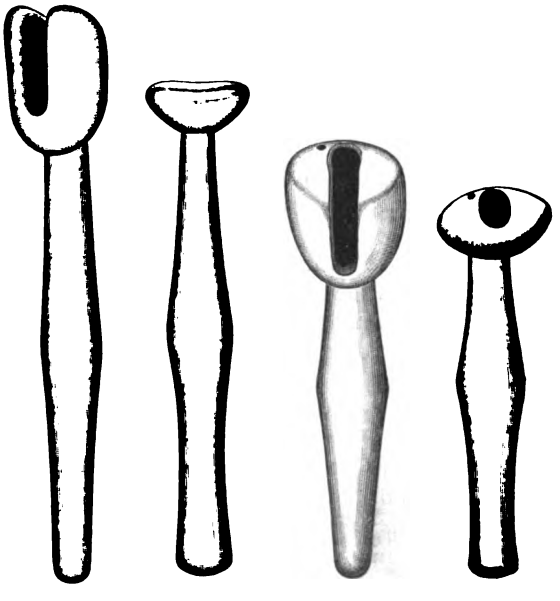
## A SUGGESTION BEARING UPON THE TREATMENT BY A NEW METHOD OF PERSISTENT VOMITING.

BY CHARLES L. GREENE, M.D.,
OF ST. PAUL, MINN.;
INSTRUCTOR IN CLINICAL MEDICINE IN THE UNIVERSITY OF MINNESOTA, VISITING PHYSICIAN TO CITY AND COUNTY HOSPITAL AND UNIVERSITY FREE DISPENSARY.

IT is with considerable diffidence that I propose a method of treating a condition that has ever been a reproach to the medical profession. Each year sees patient after patient die from the effects of uncontrollable vomiting, and no means at present within our reach meets our need in the really severe and dangerous cases. The following plan of treatment is crude and undeveloped, and the plan is suggested because I have been vainly awaiting for the past year an opportunity to test its real value, and because, should it prove useful, further delay would be inexcusable. Cases of this kind are uncommon, and my practice is along lines which make them of even greater rarity to me than would be the case if I were in general practice.



Showing special tube and ordinary tube. Full size.

It is evident that in casting about for a way to

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overcome this formidable disease or symptom we must first consider the means through which it proves fatal. These are chiefly two:

(a) Actual exhaustion from the violent and persistent retching.

(b) Starvation from the lack of power to secure and retain a proper amount of nourishment.

Rectal feeding may partially overcome the latter, but is unsatisfactory and inefficient, while in many cases no known measure will overcome the former. The treatment, to be efficacious, must, therefore, prevent the act itself, and thereby insure the reception and retention of food.

In considering the anatomy and physiology of vomiting we find a suggestion that when followed out may furnish us with a practical means of satisfying our needs in this direction, for whatever may be the cause of the act, whether local or reflex influences excite it, the actual process remains the same, and consists simply (a) in a slight contraction of the muscular fibers of the stomach itself, bringing about closure of the pylorus and opening of the cardiac orifice; (b) a coincident and vigorous contraction of the muscles of the belly-wall; and (c) a rapid and forcible inspiration, with closure of the glottis, which fixes the diaphragm and furnishes a rigid surface, against which the stomach is vigorously compressed and thus relieved of its contents. Now, it appears to be admitted by modern physiologists that unless a stomach be overfull, overflowing in fact, vomiting cannot be brought about in adults without fixation of the diaphragm, and this fixation we find to be dependent upon the rigid ribs and pressure excited by the deep inspiration, and the column of air retained by the closed glottis. If, then, this be correct, and we open the trachea, our patient certainly cannot vomit, and if we could secure the patency of the trachea by intubation we would soon have a means of partial or complete control.

Acting upon this theory the modified tube, herewith represented, has been constructed by Tiemann after the plan submitted by me, and would seem to meet the indications in so far as preventing glottic closure is concerned, and it is also intended to prevent complete descent of the epiglottis, which in the ordinary O'Dwyer tube would close the upper opening and thus defeat its purpose.

It will be noticed that the tube is like that of O'Dwyer's in its general outline, but the head is very much greater in height and there is an opening upon its anterior face, or rather its posterior aspect, as viewed *in situ*. This opening is intended to allow free egress and ingress of air whatever the position of the epiglottis. Applied to the cadaver this tube fully meets the indications, and should be borne, one would suppose, with little more discomfort than would be caused by a tube of the ordinary pattern. O'Dwyer's articles have amply demonstrated the remarkable tolerance of the laryngeal structures, and many instances are cited by him in which tubes of large caliber were borne with little discomfort for a long period. The tube figured is probably too long in the shank and too heavy, and, as suggested by Tiemann, should properly be made of vulcanite rather than of metal.

The association between the center for glottis-closure and that of vomiting is so intimate as to suggest the possibility that mere prevention of approximation of the bands would prevent the proper carrying out of the remainder of the act, and if this were the case the ordinary tube would be the proper one to use. It would seem probable, however, that any closure of the air-passage through whatever means brought about would admit of the completion of the act, and that it were absolutely necessary to secure a clear passage for the air and thus rob the diaphragm of its rigid base of support.

The applicability of this method of intubation to severe cases of hiccough or pertussis would also suggest itself.

The process of intubation is so simple and well understood at the present time as to offer no difficulties to most of us, and but little hardship would be inflicted upon a patient by this procedure.

I have experienced much difficulty in securing a substantial basis for the theory advanced, and confess myself doubtful upon several important points. The observations of surgeons upon the occurrence of vomiting after tracheotomy would be of especial value here, and will, it is hoped, be forthcoming, for should the tube fail through improper construction, or for other reasons, I believe that tracheotomy would certainly be a justifiable procedure in the terrible disease or symptom under discussion.

There are many factors that will prevent any very positive statements for or against the proposed treatment until the test of actual experience has been instituted. Dr. Henry Sewell, of Denver, whose work in physiology is widely known, has cautioned me against a too ready acceptance of expressed views of authorities, and calls particular attention to the separate existence of the center of glottic closure and that of the act of vomiting itself, indicating the possibility of independent action, though so far as one can ascertain they are supposed to be invariably in harmony. The want of definite pathologic knowledge, the possibility of overaction of the pharyngeal constrictors, and many other things may be thought of as possible disturbing factors, yet, nevertheless, it will be seen that there are *possibilities* in the line of treatment submitted, and the opportunity to test it will not be lacking to some of us in the near future. The tubes may be obtained from Tiemann, and the introducer is that ordinarily used.

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I conclude with an apology for this necessarily indefinite and incomplete report, and the hope that we shall find something of real utility in the application of intubation or tracheotomy to cases of severe and intractable vomiting.

## CLINICAL MEMORANDUM.

### *A CASE OF LUPUS VULGARIS.*[1]

BY LOUIS MACKALL, JR., M.D.,
OF WASHINGTON, D. C.

WHEN I first saw this patient I thought that her case would be an interesting one, and I had a photograph taken to show her condition at that time. The following is the history:

Ida E., aged eighteen years, resides in a canal-boat at the Maryland Dock. About six years ago she was treated at the Emergency Hospital for nasal catarrh. She described her nose as then being slightly swollen, and very much stopped up with crusts. The physicians there gave her various snuffs to use. She then went to Hancock, Md., to live. While there, about five years ago, she says the present condition began on the left ala of her nose as a pimple that rapidly formed into a crust. The doctor that treated her there told her that she had a "cancer," but made no effort to remove it. It is my opinion, though I have no absolute proof of it, that this is one of those interesting cases in which the disease commenced on the mucous membrane of the nose, and that the catarrh for which she was treated at the Emergency Hospital was the result of the lupous condition already existing. The entire nose disappeared in about three months, the left side being eaten away first, then the right; then the disease attacked the rest of the face, and continued to spread up to the time she came under my care, when the face was one immense scar covered with crusts and nodules. The entire nasal cavity was filled with crusts and tuberculous ulcerations. There was a cleft in the horizontal portion of the palatal bone and in the palatal process of the superior maxilla. She says that she did not have this cleft when she was a child. We are informed by all authorities that lupus does not attack the bones. I suppose that they would account for the cleft in this case by saying that the soft parts ulcerated and left the bones exposed, and that these necrosed as a result. When I first saw her there were some periosteal nodes on the right ulnar and left tibial bones. These disappeared for a time; but those on her leg returned, and again disappeared under treatment. During the period of her illness she has been confined to bed only three days. I mention the fact to illustrate how much these patients can endure and yet go about. She menstruated for the first time last month. The family history does not furnish any information. The girl says that her mother died of dropsy at the age of forty-nine years, and that she had a cough when she died. Her only sister is living and presents a very healthy appearance. She has no signs of pulmonary or of laryngeal trouble. She has been under my treatment for several months past, and though she comes to my office very irregularly she has continued to improve very rapidly.

I shall not weary you with a detailed statement of my treatment, which has nothing unusual in it; but I will only give a brief synopsis of the method adopted. I have been giving her tonics of various kinds, alteratives, and as nutritious a diet as possible in her station. I removed all crusts, and then applied Unna's plaster to her face, and a solution of salicylic and carbolic acids of the same strength to her nasal cavity until the tubercles were completely broken down; I then dressed the raw surfaces with a solution of hydrogen dioxid.

There have been several classifications of lupus; but the one generally accepted divides it into two broad classes, lupus vulgaris and lupus erythematosus. It is not always so easy to decide to which of these two simple classes some examples belong. I have seen patients in the clinics of Sir Jonathan Hutchinson which even he was not able to classify. I consider the most simple classification of a disease always the best. Lupus is one of the few true tuberculous ulcerations of the skin. It is an infectious disease caused by a specific micro-organism, the bacillus tuberculosis. Koch has proved this fact by finding the bacilli in small number in the nodules characteristic of the disease. The bacilli, according to Moullin, occur in the shape of very thin non-motile rods from two to eight micromillimeters in length, and are found in the interior of the giant-cells and epithelial cells, but they are so few that many distinguished authorities deny that they can be the cause of such a destructive ulceration. Both forms are very chronic.

[1] Read before the Clinico-Pathological Society of Washington, D. C.

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Lupus vulgaris is very common in England. It is even estimated to form about 2 per cent. of all cases. But I think that statistics on that point are not reliable. Both forms of the disease are rare in this country. Lupus vulgaris is much more common than lupus erythematosus, and, as my case belongs to the former class, I shall confine myself to the description of that variety.

Lupus vulgaris, as a rule, begins in childhood, very rarely commencing after the fourteenth year, although there are some few cases on record beginning as late as the thirtieth year of life.

The disease generally begins on the face, attacking first the cheek or nose. It is usually unilateral, although sometimes it presents as symmetrical an appearance as lupus erythematosus. It sometimes attacks the limbs, buttocks, and mucous membranes. There is a case reported by Mathews Duncan in which it attacked the vulva, but authorities generally believe this to have been a case of syphilis. The face is the favorite locality for all forms of lupus, and it generally takes for its victim one who has a fair complexion. It is more common among females than among males. Crocker describes a typical case as commencing with a few scattered or grouped spots about the size of a pin-head, of a dull-red color, on the level, depressed, or raised, above the normal skin. They do not disappear on pressure. These spots are gradually developed into small tubercles which have a semi-translucent aspect and are of a brownish color and present the appearance of apple-jelly.

These tubercles, sometimes rapidly, sometimes slowly, are developed into a red patch or patches raised distinctly above the skin, and having a firm edge. At this period there is generally a scaliness present. The growth of the disease varies considerably. It has variable periods of improvement; the older one gets, the more frequent is there a tendency to quiescent periods. I think that this is so because the patients learn to take better care of their general health, and learn by bitter experience to avoid exposure of all kinds. Associated with the lesions on the face at a later period of the disease they often present on the limbs subcutaneous nodules that finally become adherent to the skin itself. In those who have a strumous diathesis they often present abscesses, periostitis, caries, etc. Joints sometimes become crippled from the contraction of tendons in the cicatrices.

The age of the patient, the scarring, the apple-jelly nodules, and the persisting spreading render the diagnosis easy.

It is very seldom that there is a complete cure after the places are apparently healed up. If the patient becomes a little run down in health the disease recurs each time, destroying more tissue until the face becomes one complete scar.

Early diagnosis is of extreme importance, for it is only in those cases in which it is made that we may hope to cure the disease by prompt eradication.

The treatment is divided into constitutional and local. The latter is, by far, the more important; but the constitutional should not be neglected, and everything possible to improve the general health should be done. Improvement in assimilation is the great aim. As nutritious a diet as is permissible with perfect assimilation should be allowed. The patient should be surrounded by good hygienic conditions, and he should avoid exposure to the weather, as cold is considered one of the predisposing causes. Cod-liver oil, iron, hyphophosphites, and other tonics (when they agree with the alimentary system) are often beneficial, because the disease is so often associated with the strumous diathesis. For a long time past all attention has been given to local treatment.

Koch's lymph has revived great interest in the general treatment. The great object aimed at is complete removal of the tuberculous tissue. We endeavor to do this by many different methods; but the principle of them all is the same. Some surgeons use the Volkman spoon. Perhaps this is the most popular method. When the spoon is used great care should be taken to use it thoroughly at the margins of the sore. The actual cautery is applied by some after using the spoon, and by others it is applied without the previous use of the spoon. Afterward the sore should be dressed with one of the various antiseptics. Various chemicals have been employed by different surgeons. Among those which are most deserving of mention is Unna's plaster, which consists of salicylic acid and phenol as its principal ingredients. The phenol is used because of its anesthetic power. This plaster is called after the celebrated Unna (of Hamburg), who used it a good deal. The application should be renewed frequently until the nodules break down and free suppuration sets in. Some antiseptic ointment should then be applied to the sore. Some surgeons use chromic acid and others caustics. The result does not so much depend upon the caustic selected as upon the care taken by the physician. Recently some experimenters have endeavored to produce erysipelas in the sore, and they claim that the experiments have produced some good results; but I have had no experience with this method. There can be no doubt that Koch's lymph has proved beneficial in some cases. It has rarely failed to produce either a general or local reaction, and generally both. Some of the London surgeons have combined the surgical method and Koch's treatment with very good results.

## NEW DEVICE.

### *A NEW EXTRACTOR FOR THE REMOVAL OF INTUBATION-TUBES FROM THE LARYNX.*[1]

BY DILLON BROWN, M.D.,
OF NEW YORK.

THE greatest difficulty in the technique of intubation is the removal of the tube, and it is almost always during efforts at extraction that the larynx or neighboring soft parts are injured. Either the sharp point of the extractor is forced into the soft tissues and a false passage is made or the tip fails to enter the tube and passes along the outside of it, within the larynx, so that when the blades of the extractor are widely opened and withdrawn they divulse the larynx, and the tube sinks out of reach.

On account of these objections many have entirely abandoned the operation; others remove the tube by position and by pressure over the trachea; and others

[1] This device was exhibited to the American Pediatric Society, May 27, 1895.

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remove it by the string, one end of which is attached to the tube and the other fastened to a tooth or brought out through the nose. The dangers and disadvantages of such methods are obvious.

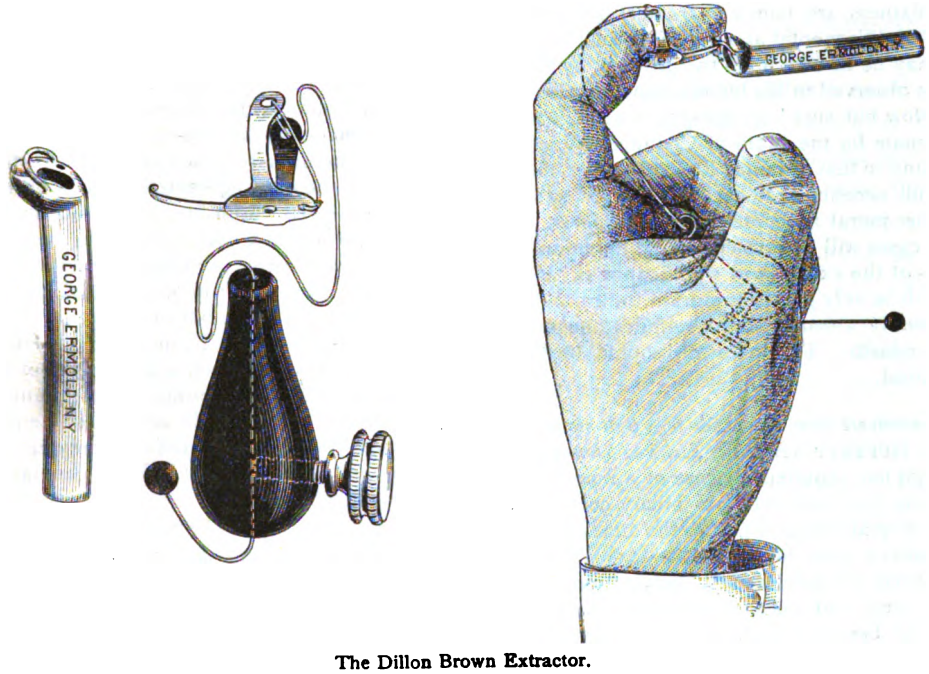
These serious drawbacks to this most brilliant operation have led me to modify the tubes and to devise the extractor which is described and illustrated in this paper. A wide experience in teaching men who are unfamiliar with the operation has demonstrated to me that a large proportion of them find much difficulty in removing the tube with the old extractor, and many of them never succeed in doing it quickly and skilfully. With the new instruments rarely does a man have any trouble in quickly extracting the tube—even in the beginning, and without practice. And it seems to me that a nurse could be easily taught to take out the tube after a few minutes' instruction on the cadaver.

The new tube is as efficient as the old one; it does not increase the difficulties of deglutition—rather the reverse—and it does not interfere with the older methods of extraction. It has a stiff wire loop attached to its head (see illustration), which is firmly fastened to one side, rises about one-eighth of an inch, closely follows the posterior edge of the head of the tube, and is finally fastened to the corresponding point on the opposite side. This makes an *eye*, bent posteriorly, which is easily and almost unavoidably caught, and which does not interfere with the opening in the tube or with the epiglottis. The posterior part of the head of the tube is scooped out, making an antero-posterior groove, which still further facilitates the catching of this eye.

The extractor is a simple *hook* fastened to the finger (see illustration), so that the tip is held moderately firmly against its palmar surface, and far enough away from the ball to prevent its interfering with the sense of touch. The hook is fastened to the finger by the flexible metal ring, and is removed by the string after it has caught the tube. Pulling on this string brings the ends of the metal ring together and holds it firmly on the finger, and it is kept steady by wrapping the string once around the index finger and grasping the wooden handle in the palm of the hand. The string can be sufficiently shortened by means of the screw to enable one to do this with ease.

On feeling the tube, and pressing firmly down and back, it is almost impossible for the *eye* to avoid slipping between the finger and the *hook*, and the shape of the latter prevents it from escaping. On withdrawing the finger the tube must come with it. It is evident that this extractor not only greatly simplifies the removal of the tube, but makes it impossible to do any damage to the larynx during this procedure.

These tubes and extractors are made by Mr. George Ermold, 312 East Twenty-second Street, New York, and my thanks are here extended to him for the skilful manner in which he has carried out my suggestions.




The Dillon Brown Extractor.

## MEDICAL PROGRESS.

***The Cerebral Fissures of Two Philosophers.***—In a paper read by title before the American Neurological Association, Dr. Burt G. Wilder stated some results of a study of the brains of two philosophers, Chauncey Wright and James Edward Oliver. These men were recognized as superior in character and mental power. They were mathematicians, and thought deeply upon the broadest questions. Wright was more a writer and general critic; Oliver was more a teacher of advanced mathematics. The latter was slight in frame and alert in action, the former was large in person and slow of speech and movement. Wright's brain weighed 1516 grams (53.50 ounces), Oliver's 1416 (49.94 ounces). Although above the average of male brains (about 1400 = 49.4 ounces), greater weights are not uncommon even among less intellectual persons. In both, the frontal region is unusually high and wide; the unprecedented squareness of Wright's

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suggests some post-mortem pressure, of which, however, there is no record. In both, the supertemporal fissure is longer than common. Oliver's fissures present several individual variations from the common type, but none comparable with the two rare conditions in Wright's, already noted by Dwight (*Amer. Acad. Arts and Sciences, Proceedings*, xiii, 210–215, 1877), and by Wilder (*Journ. Nerv. and Mental Disease*, xvii, 753–4; *Amer. Neurol. Trans.*, 1890; *Ref. Handbook Med. Sciences*, viii, 158–159, ix, 108). The complete interruption of the central fissure has been observed in a dozen cases or more. The simplicity of the fissures and the width and flatness of the gyres are paralleled in the Cornell collection only in the much smaller brain of an unknown mulatto (No. 322, *Ref. Handbook*, viii, Fig. 4767). Some approach to this condition occurs in Ruloff, a murderer (No. 965), and perhaps in a German shown by Wagner ("Vorstudien" Taf. vi, Fig. 2) after Huschke ("Schädel, Hirn und Seele," Taf. v, Fig 2). If fissural simplicity and gyral width and flatness are family characteristics, or correlated with Wright's mental and physical deliberateness, then light may be thrown upon the problem by the conditions to be observed in his blood-relations or in others similarly "slow but sure" in thought, speech, and act. As a close mate for the brain of Chauncey Wright has not been found in that of James Edward Oliver, the contemplated full account of it need not longer await the death of other moral and intellectual compeers. Such exceptional cases will always command attention. But all estimates of the extent and significance of their peculiarities will be only provisional until the careful comparison of *many average* brains supplies one or more types or standards. This necessity should be kept in the public mind.

***Fatal Hematemesis from Ulceration of a Gall-stone into the Duodenum.***— DUFFETT (*British Medical Journal*, No. 1794, p. 1090) has reported the case of a man, fifty-two years old, who had suffered from biliary colic for nine years. On several occasions, after the attacks had subsided, gall-stones were found in the stools. The last attack had occurred nine months before coming under observation, and had been exceptionally severe. An operation had been advised, but had been declined. The patient came under observation for an attack of hematemesis, in which more than a pint of dark, clotted blood was ejected. The skin and conjunctivæ were jaundiced, and there was intense irritation of the skin. The abdomen was flaccid and easily palpable, but no enlargement of the liver or gall-bladder could be made out. The bowels were constipated, the stools clay-colored, and the urine contained bile-pigment. Shortly afterward, after overexercise, the man vomited up a pint-and-a-half of semifluid, dark blood, and two hours later an additional half-pint; besides, the bowels moved unconsciously and the stools contained partially decomposed blood. On the following day the patient complained of faintness and dimness of sight, and soon afterward vomited three pints of clotted blood, one clot representing a distinct cast of the pyloric end of the stomach and the upper part of the duodenum. A further hemorrhage was followed by death. Upon partial post-mortem examination the liver was found hard and slightly contracted. The stomach contained a quantity of blood, its mucous membrane was thick, and there was no trace of ulceration. The pylorus was normal. The gall-bladder was small and contracted and empty, and its walls thickened. A finger introduced into the gall-bladder passed easily into the duodenum. Lying loose in the duodenum was an unfacetted gall-stone with a quantity of blood. The edges of the opening were soft and probably of recent date. The gall-stone measured three-quarters by one-half inch, and weighed when dry forty grains.

***Endogenous Formation of the Malarial Parasite.***—LEONARD (*International Medical Magazine*, vol. iv, No. 4, p. 265) has been able to study the endogenous formation of the malarial parasite by means of photomicrographs prepared from fresh malarial blood, kept at the temperature of the body with the aid of a warm stage, and magnified two-thousand diameters. The free, non-pigmented, hyaline ameboid form is a minute globular hyaline mass, of a slightly different density from the surrounding medium, varying in size, but seldom exceeding one-fifth the diameter of a red corpuscle. It is found attached to a red corpuscle, and may be seen in active ameboid motion within the red corpuscle. It represents the first stage of the life-cycle of the malarial hematozoon. The intra-corpuscular pigmented form is developed from the non-pigmented ameboid form after it has entered the red corpuscle, and contains a pigment—melanin, which is a derivative of the hemoglobin of its host collected in a granular form. It varies in size, sometimes gradually increasing until it occupies the entire corpuscle. The extra-corpuscular pigmented form is the intra-corpuscular pigmented body which has come out of the red corpuscle, either by the extrusion of the individual or by the formation of a number of these bodies within a corpuscle and its subsequent rupture. The crescentic body or malarial crescent is probably a resting or spore-form, and is found generally in cases of malarial cachexia.

***A Pregnancy of Ten Months.***—At a recent meeting of the Chicago Gynecological Society DR. F. A. STAHL reported the case of a German-Bohemian woman in which the fifth pregnancy terminated 302 days after the last menstruation. Twenty days before there had occurred pains similar to those of labor, but they gradually ceased. The sacral promontory was exaggerated, and the antero-posterior pelvic diameter of the inlet in consequence diminished. The fetus was large and occupied the first position. Version was with difficulty effected, and the passage of the after-coming head through the superior strait required expression and traction, during which the child died. The mother suffered a deep laceration of the perineum, involving an inch of the wall of the rectum.

***Recovery from Hyperpyrexia Accompanying Pleurisy and Pneumonia.***—STANLEY (*British Medical Journal*, No. 1794, p. 1144) has reported the case of a woman, thirty years old, in which in an attack of pleurisy and pneumonia the temperature rose on two occasions to 114°. At these times the patient complained of complete loss of sensation in the hands and feet, and requested to have have them rubbed. Absence of delirium was noted.

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SATURDAY, JULY 6, 1895.


## *THE PERFECTION AND THE RESOURCES OF THE HUMAN MACHINE.*

IT is so easy to notice defects, either in others or in ourselves. In others they seem to stand out in bold and cheerful relief, while in ourselves they thrust themselves upon our notice in the most annoying manner. When we agree with the Psalmist that "we are fearfully and wonderfully made," it is our fearful liability to break down or get out of order that we are chiefly thinking of. Perhaps this is but natural, for it is always the evil in things that most sharply impresess us. Comfort is a passive, hazy sort of sensation compared with the clear-cut acuteness of pain. Besides which there's no need to pay any attention to the good qualities of things. They'll never bother you. "Well enough" can be safely "let alone." Ill, however, demands our instant attention and action.

Health will take care of itself, disease must be cured at once if possible. A healthy man doesn't know that he has such a thing as a stomach; a dyspeptic doesn't know that he has anything else. Hence pain is the great educator, the chief spur to investigation. If there were no suffering there'd be no medicine, no anatomy even; pathology is the starting-point of physiology. So long as all goes well and smoothly we care nothing about our interior make-up, but let "dys-" anything develop, and the digging and probing begin at once.

Does not this state of affairs have a strong, though unconscious, influence upon our mental attitude as a profession toward the human machine? We are kept so continually engaged in patching and tinkering at it that we are in danger of coming to look upon it as a bundle of defects. The laryngologist declares that a healthy (or artistically symmetrical) nose or throat is rare; the gynecologist deplores the faulty plan of construction of the uterus and vagina; the oculist announces that a "normal eye" is to be found only in the text-books; and the bacteriologist regards the young human body merely as a congenial culture-medium for the Klebs-Loeffler and the adult one for the Eberth bacillus. We are prone to rate our patients much as Falstaff did his recruits, "Tush, tush; mortal men, food for powder, food for powder!" only the grains of our "powder" are alive and wiggle, and assume a variety of comma-shapes. Even as sanitarians we seem to delight in populating the heavens above, the waters, the earth beneath, the dust of our streets, the food upon our tables, with hosts and swarms of tiny savages to whom the human body is a helpless prey whenever pounced upon. Existence would be impossible but for germicides, say we. It is positively dangerous to be alive! In short, we often forget that the human body is not a pulpy victim of circumstances, but the toughest, most resisting, most marvellously adaptable, and most ferocious organism that the sun shines upon. It can flourish where nothing else can, and fatten on a diet of any other organism that can be mentioned, not excepting the pathogenic bacilli.

In the first place, the lesson that the schoolma'am is so fond of impressing upon the infant mind, "Man is physically the feeblest of all animals, but by his superior brain he masters all," is utterly untrue. Man is physically the finest, most dangerous animal in the world. Not a bird or beast or even fish that he can't beat at its own game, if he sets himself about it. The Blackfoot Indian will run down a deer, knife in hand; even the "tireless wolf" can be overtaken and killed if you can only keep on his trail. The negroes of Mozambique spring right into the water and attack sharks, armed only with a short knife. The Sikh will face a tiger with his short, heavy scimeter, and a thous-

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and tests abundantly demonstrate that civilized man is as much superior to the savage as the latter is to the animals. Club or sword in hand, man is a match for the most ferocious beast of prey in a fair, stand-up fight, and the club or its descendant is as much a part of us as our bones or skin; but for it we should never have allowed our teeth and claws to degenerate into such feeble objects. Its use has made us right-handed; right-handedness has specialized the cortex to such a degree that speech was possible, and speech makes thought possible. So that our mental superiority is purely an outgrowth and a part of our muscular superiority. In the language of Tommy Atkins in Kipling's ballad, *homo sapiens* is "a pore benighted heathen, but a fust-class fitin'-man," and two-thirds of his virtues, moral, physical, and mental, are the fruits thereof. And yet we talk of him professionally as if he were a clam without a shell.

In the second place, there is no known organism that can defy the elements as he can. Any zoologist will tell us that no other mammal and no bird has one-half the geographic range that the human species has. His faithful friend, the dog, will accompany him almost everywhere, but only by having his food, shelter, and even clothing provided for him by the superior species. We speak of being "as rugged as a bear," but it takes three distinct species of *Ursus* to keep pace with man from the tropics to the pole. A dozen or more species of deer are required for the same match. Even the domestic animals when carefully housed and fed by him are far inferior in toughness, and one of the greatest obstacles to his progress in many regions is the impossibility of finding any beast of burden or milk-giver that will live in the climate with him. The only species that can even enter the lists with him is the blue-winged teal, and he is disqualified at once by the fact that he is the "very moral" of a fashionable valetudinarian, spending his summers in Labrador and his winters in Florida.

Much of this faculty is, of course, due to man's power of constructing shelter and clothing for himself, but still more to his worldwide range of food-materials. Look at him in the tropics, subsisting on rice and fruits, only sawdust and shavings under his boiler, so to speak; in the Arctic regions, gorging upon seal-meat and whale-blubber, firing his engine up to the explosion-point. His instinct meets the situation. A Hindoo would look with loathing on the eighteen-or-twenty-pound meal of seal-blubber of the Eskimo, and we carnivora of the temperate zone would hesitate about attacking it. Yet a professional friend of ours has assured us that on a mid-winter trip with dog-sledges near the Alaskan shores of the Arctic Ocean he positively lost all appetite for bread, lean meat, fruit, sugar, etc., and cared for nothing but the unsalted dried salmon and rancid seal-oil which formed the food of both his Eskimo guides and their dogs. A pint of the latter beverage carried in the uncured skins of the animal, he declared, was as refreshing and appetizing after a long day's run as hot coffee with cream. When we remember that the whole party was sleeping out on the ice every night, in a temperature of from 30° to 60° below zero, with no shelter save their reindeer-skin, night-bags, and their sleds piled up on the windward side of them, we begin to see the reason for this almost pure hydro-carbon diet. There was not room in the human stomach for enough of any other material to furnish heat to keep up the bodily temperature against such fearful odds. But think of the splendid adaptability of the creature! Our respect for the human machine becomes immeasurable. At the other extreme, look at Stanley and his Somalis, laboring forward day after day in heat and fever-fog through the jungles of the Congo, everything carried on the heads of the men (no horses, oxen, or even asses could stand the work and the climate), all on a diet of roasted bananas, sugar-cane, and green corn.

The same toughness and faculty of adjustment manifest themselves even more strongly when we come to consider the unfavorable environment in which man places himself in the various occupations of civilized life and the strain of city surroundings. Scarcely a trade or occupation can be mentioned in which most of those engaged in it are not vigorous, healthy, and long-lived. We speak of "occupation-diseases;" it is true there are such, but none of them ever affects more than a small percentage of those engaged. Even when they occur they are symptoms of lowered vitality, either local or general, on the part of the sufferer in most cases. Many of them can be avoided entirely by cleanliness and observance of the ordinary laws of health. "Painters' colic," for instance, is caused entirely by eating the mid-day lunch with unwashed hands or upon spattered boards or tables, and can be completely escaped by always thoroughly cleaning the hands before eating. "Phosphorus-necrosis" never at-

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tacks a healthy mouth or jaw, and can be prevented by the prompt filling or removal of decaying teeth. "Chimney-sweeps' cancer" finds a perfect prophylactic in the daily use of soap and water. It was long supposed that in "miners' consumption" and "printers' phthisis" and "knife-grinders' asthma" we had a group of diseases, practically necessary risks of the three occupations, but the first is completely out of the list now, first, because the death-rate from tuberculosis is no higher among miners than in the rest of the community, and, second, because a similar carbonized condition of the lungs is being found to exist in a considerable proportion of dwellers in manufacturing towns and smoky cities without any corresponding increase in the prevalence of pulmonary tuberculosis. It is also more than suspected that the irregular hours and worse habits of the "typo" have much more to do with his "consumptive" tendency than the dust of dried printers' ink in which he works.

Of all occupations probably none has had a blacker reputation for unhealthfulness, both popularly and professionally, than that of the coal-miner. Working as he does hundreds of feet under ground, in wretched little burrow-like passages, in an atmosphere foul with coal-dust, fire-damp ($CH_4$), "choke-damp" ($CO_2$), and powder-smoke, exposed to the most frightful accidents by explosion, by water, by falling rock, surely no mortal organism can long resist the pressure. When we further remember that in the English mines the galleries in which he works scarcely average *four feet* in height, and that in coal-getting ("holing under" the seam) he often works for yards at a stretch in a space *two feet or less* in height, so that he has to lie flat on his side to swing his pick; that the mine is usually both warm and damp, so that he emerges dripping wet at the pit-mouth into an atmosphere from 30° to 60° lower; that his dwelling is a mere barrack, usually badly built, badly drained, and overcrowded; that his wages are so irregular that life with him is generally "either a feast or a famine," we marvel that the breed doesn't become extinct. No wonder it was for long years rated as an extremely unhealthy occupation. The question has been carefully investigated within the last ten years, however, with the astounding result that "the comparative mortality-figure of these laborers is considerably below that of all males, and, if we exclude accidents, only slightly exceeds that of the most healthy class, the agriculturalists." (Dr. Ogle, Census Statistics of 1881.) The same authority also reports that "his mortality from phthisis is remarkably low." The Labor Commission sums up its findings in the sentence: "The weight of evidence seems to be against the idea that coal-mining is an unhealthy occupation." That veteran gladiator, the human body, has risen to the emergency again and conquered just as it used to do in the ages when it lived on bear-meat and ground-nuts by choice, mussels and sea-weed by necessity, and sucked its paws when it could get neither.

The soap-renderer, the hide-scraper, the tanner, the refuse-sorter literally spend their lives amid the most offensive odors and putrefying materials, and yet their mortality is scarcely perceptibly heightened thereby. The workers in our foundries, our smelters, and our engine-rooms live at terrific temperatures for hours at a stretch with comparative impunity. The Swansea copper-smelter, for instance, works hard for seven or eight hours a day in a temperature of from 102°–110° Fahrenheit, exposed to a glare, when the doors are opened, of from 350° to 400°, drinking from two to three gallons of water a day to supply his loss by perspiration, and yet he is a hale, hearty fellow, and lives to a good old age.

In fact, man can accustom himself to work with safety and even comfort at almost any temperature, pressure, degree of moisture or dryness, in almost any position or atmosphere, providing he is reasonably well fed and housed, and maintains a fair general condition of health.

And it were well for our bacteriologic brethren, indeed, for all of us, to remember that the toughness and resisting-power of the human body are just as great against disease and all its germs as against any other unfavorable influence; that the fixed cells of our own bodies are to the deadliest bacilli as a regiment of British infantry to a swarm of Hottentots; that the hottest place a disease-germ can get into is a healthy bronchus or stomach.

Our chief aim in the cure of disease should ever be to "give Nature a chance."

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### NERVOUS DISEASES AND MODERN LIFE.

THE foregoing is the caption of a most interesting and brilliant contribution to the *Contemporary Review* by Dr. T. Clifford Allbutt, in which it is most cheering to find him vigorously opposing the prevailing impression that our nerves are going to rack and ruin under the strain of civilization. He first

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points out that most of those who indulge themselves upon this subject are in the habit of arguing somewhat in a circle to the effect that, firstly, nervous diseases are on the increase, therefore modern life must be injurious, and secondly, that modern life is mischievous, therefore nervous maladies must be increasing.

The stock-in-trade argument in support of the first proposition is the alleged increase of insanity. This, Dr. Allbutt considers at some length, and concludes that the "figgers" are in reality misleading when certain other facts are taken into account. First of all, our lists of the insane are much more complete than they could be twenty years ago, and a very much larger proportion of them are cared for in asylums of some sort; the days of the village "innocent" or the household "deficient" are over. Second, the life-terms of these unfortunate creatures, no longer permitted to roam at large in all weathers and beg their food, protected against their own folly or violence and carefully nursed and treated in illness, have been greatly prolonged, so that a much larger number of them would be living at any given time. Indeed, from his own observation and his inquiries of experts Dr. Allbutt is inclined to believe that insanity is actually slightly on the decline, although apparently (from the causes named) on the increase. He further questions whether modern conditions are in any way responsible for the mass of our existing insanity. The greatest increase noticeable, for instance, comes from the agricultural laboring class, who are, of all others, least subject to the bustle, strain, and excitement of civilized life. No class or profession can be said to be more liable to insanity than any other; indeed, some of the highest percentages are to be found in the illiterate classes. History abundantly shows that possession by devils, frenzies, epidemic manias, etc., are and have been at least as common among savage tribes as similar mental disturbances among civilized peoples.

The doctor next takes up the question of the increase of nervous diseases generally. He shrewdly opens with the remark that it is commonly alleged of nearly all chronic diseases that they are on the increase nowadays, carcinoma, heart-disease, and gout, for instance. Much of this he regards as due to the simple fact that, to use a Hibernicism, "more people live to die of them." Our great advances in hygiene, dietetics, quarantine, and therapeutics have greatly decreased infant-mortality and the infection death-rate, which, of course, leaves a larger proportion of individuals surviving to adult or middle life subject to the diseases named, "for die we must somehow," as he quaintly remarks. Then, again, we are becoming much more attentive to symptoms of disease or discomfort than formerly, less inclined to resign ourselves to things, more determined to have a name and a cure for our ailments. The "patient invalid" of exemplary piety is no longer our ideal; but "our neurotics have begun, like ghosts, to walk, and we exclaim that the earth is full of them." As a result of this impatient resistance we are so much better fed, housed, exercised, and treated that the physique of all classes has been greatly improved, and particularly that of the upper and middle classes.

There is a delightful ring of sturdy sense in Dr. Allbutt's protest that most of the results attributed to "overwork" and "overstrain" are really due to the bad physical habits of the worker, and senseless methods in which the work is done, such as under-feeding or over-feeding, hurried eating, stuffy rooms, insufficient air, exercise, and recreation, etc., and not to the work itself. We are only just beginning to know *how to work* intelligently. Our medical courses, even their surroundings, are a disgrace to the age, and "business-methods" are even worse.

And now comes the most interesting position of the whole paper, and, in our judgment, the most impregnable: that the popular belief that because the greatest demands of the age fall upon the nervous system the latter is injured thereby is entirely fallacious. On the contrary, it is strengthened and invigorated by exercise, just as any other part of the organism. The whole life of civilized man is becoming so much wider and healthier and happier that his nervous system is becoming really stronger and better balanced every year. The nineteenth-century nerves are better able to bear the demands upon them than were those of the eighteenth century in their time. The age is better, broader, more humane, saner in every way, mentally, morally, and physically than it was a century ago. Such brutal coarseness and obscenity as Hogarth's pencil and Swift's pen sketched on every highway and parlor-carpet could hardly be found nowadays save in Whitechapel or Five Points. Insanity is a disease of the narrow, ignorant, untrained mind, rather than of the contrary. (Farmers' wives, for instance, in this country furnish the largest female quota.)

Of course, this great development has necessarily

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been accompanied by a higher degree of nervous excitability. But, as Allbutt neatly puts it, "it is the business of nerves to be excitable." It is an essential part of their sensitiveness, of their fineness of organization, which alone makes all this progress possible. Fancy a poet, a violinist, a statesman, a general even, without sensitive nerves. Most of the "over-excitability" of which we complain is due to *under*-exercise instead of overwork, just as a mettlesome horse becomes absolutely uncontrollable if kept too much in the stable, and frets himself into a lather when harnessed, instead of settling down to work. Just give our wailing neurotics plenty of work of interest, of responsibility even, and their ailments and "nervousness" will in most cases disappear as by magic. Not only this, but the neurotic is often actually under-sensitive rather than the contrary, absolutely apathetic, if not mentally anesthetic, in many respects. Indeed his excitability is not seldom due to lack of inhibition of the first impulse by some balancing sensation and motive. He is unbalanced from a deficiency and not from an excess of "nerves."

As to the senseless claim that we are fast becoming "degenerates" (the pseudo-scientific equivalent of "cranks," and like it so charmingly applicable to anybody we do not happen to approve of) under the strain, and that most of our so-called "genius" is a mild form of insanity, our authority briefly but effectively remarks that its advocates appear to have little real knowledge and no clear idea of either genius or insanity, and, he might have added, of history, either, for with these charlatans it is the exception that proves their rule with a vengeance. "In the hands of these gentlemen a man of mark is not admitted into the ranks of genius unless he can show some claims to insanity; while on the other hand a streak of this malady insures for very dull dogs a welcome into the inner circle." And he closes this section with the pithy reflection, "I will not inquire where the malady may lie between the observer and the observed."

In short, most of our "nervousness" is really due to defective control, lack of sufficiently keen and powerful balancing impulses, to narrowness, feebleness, and one-sidedness of development, and insufficiency of work and demand, rather than to the opposite. Superficial sensitiveness is often due to absence of real depth and breadth of feeling, while through wider sympathy, deeper passion, and more vigorous exercise of all our powers come both health and, what is better, progress. "It is in the battle rather than in the fruits of victory that we find the precious extract that is the medicine for the malady of our generation."

## EDITORIAL COMMENTS.

***Medical Abuses in New York.***—The medical profession of New York City appears to be awakening to a realization of some of the abuses of which medical men are made the victims. At a recent meeting of the New York County Medical Association attention was forcibly directed, among other things, to the discourtesy with which physicians are sometimes treated by the lay trustees of semi-public hospitals, and to the injustice to the members of the profession from the free treatment in the numerous dispensaries of persons able to pay for medical attendance, and the treatment in hospitals of patients of comfortable means and more, without charge for professional attendance. The frequency was pointed out with which attending physicians are merely dropped from the medical staff without a word of notice or explanation. A committee was appointed with instructions to meet during the summer to prepare a report and to propose suitable remedies. The abuses referred to have been frequently discussed in these columns, and we are glad to see them receive official cognizance by a powerful and representative medical body. Active agitation of the subject must result in good, and the necessary remedy would be easy of application in the hands of an organized and united medical profession.

***Selections from Medical Journals.***—Our sprightly and enterprising contemporary, *The Medical Fortnightly*, recently took occasion to say that THE MEDICAL NEWS in its Medical Progress "always prints a collection of extracts from English, French, and German medical publications—rarely one from an American journal." Conscious of both the inaccuracy of this statement and of the injustice of the imputation contained in it, we have analyzed our Medical Progress and Therapeutic Notes for the past thirteen weeks and find that of ninety-two abstracts twenty-three were prepared from American journals and proceedings of American medical societies and the remainder from English, German, Austrian, Swiss, and French. As a matter of fact, *all* of the abstracts in the issue of June 22 were from American publications. We trust the fealty of THE MEDICAL NEWS to the American medical profession is too well established and their community of interests too obvious to require defence from hasty and ill-considered statement.

***The State Board of Veterinary Medical Examiners of Pennsylvania.***—Act 55, approved May 16, 1895, provides for the establishment of a Board of Examiners to regulate the practice of veterinary medicine and surgery in the State of Pennsylvania. The Board is to consist of five members appointed by the Governor, who shall be graduates of recognized veterinary colleges and of at least five years' practice. This most commendable Act goes into force on the first Monday in September, 1895,

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after which no one shall enter upon the practice of veterinary medicine and surgery unless he has been duly licensed and registered, and no licence will be granted until the applicant has submitted to a theoretic and practical examination, including the following subjects: Veterinary anatomy, surgery, practice of medicine, obstetrics, pathology, chemistry, veterinary diagnosis, materia medica, therapeutics, physiology, zootechnics, sanitary medicine, and meat-and-milk inspection. Heavy penalties are imposed for violation of the Act.

***Sweat Bake shops.***—In an investigation undertaken by the Women's Union, a society of women interested in the labor-movement, shops have been discovered where bread is baked under most filthy conditions. These shops are usually in cellars where vermin and rats are in abundance, and in which the bakers sleep when off duty. Such shops are not confined to any special district, but may be found all over the city.

Public opinion can do much in bringing about a change, both in this and sweat-shop clothing, by demanding cleanliness in the manufacture of such articles. We understand the Union is about to publish a list of bakeries where proper sanitary conditions are enforced; a label has also been adopted which will be a guarantee of well-made bread.

***The Report of the Trial of Amick vs. Reeves.***—A distinguished correspondent writes us, *apropos* of the editorial in THE MEDICAL NEWS of June 29th, that perhaps sufficient publicity was not given to the appeal for subscriptions to the fund for the purpose of publishing in pamphlet-form the report of the trial of Amick *vs.* Reeves at Chattanooga, Tenn. The appeal appeared both in the *Philadelphia Polyclinic* and THE MEDICAL NEWS of April 27th, and we hope that our recent remarks will meet with an unequivocal response. THE MEDICAL NEWS will be glad to receive and acknowledge subscriptions of fifty cents and over. We have received $1.00 from Dr. R. S. Wallace.

## CORRESPONDENCE.

### LEGAL PROTECTION OF PROFESSIONAL CONFIDENCES.

*To the Editor of* THE MEDICAL NEWS,

SIR: It will probably interest readers of THE MEDICAL NEWS to know the exact wording of a law passed by the Legislature of Pennsylvania at its last session and signed by the Governor on June 18th, which was meant to provide protection for physicians called as witnesses in civil suits against questions the answers to which would injure the good name of their patients.

Here is the text of the law:

"An Act to Prevent Physicians and Surgeons from Testifying in Civil Cases to Communications made to them by their Patients.

"SECTION 1. Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania in general assembly met, and it is hereby enacted by the authority of the same, That no person authorized to practise (*sic*) physics (*sic*) or surgery shall be allowed in any civil case to disclose any information which he acquired in attending a patient in a professional capacity, and which was necessary to enable him to act in that capacity, which shall tend to blacken the character of the patient, without his consent."

The courts will probably construe this law in the sense in which it was intended. But this sense might have been much better expressed, as any shrewd lawyer could easily juggle with the new law so that its object would be wholly defeated; and, as it contains no penal clause, there is nothing to prevent a physician (if moved by malice or carelessness) from doing precisely what it forbids.

Medical men may note that the law affects the position of a witness in *civil* suits only, and that it does not leave the medical witness any choice, but (so far as it may be operative) *forbids* him from violating professional confidences. Just how far the courts will rely upon the judgment of a physician-witness who objects to a question on the ground that a particular answer, if given, would "tend to blacken the character" of his patient remains to be seen. Meanwhile this law is a movement toward an end long desired by medical men, and it is to be hoped that it may accomplish what has been desired.

Respectfully,

CHARLES W. DULLES.

### DETERIORATION OF DIPHTHERIA-TOXIN.

*To the Editor of* THE MEDICAL NEWS,

SIR: In your issue of June 1, 1895, in a footnote on page 600 of Dr. Howard's article on the treatment of diphtheria with antitoxin, he refers to my test of the antitoxin and the finding of a strength of 60 antitoxin-units to the cubic centimeter. Since these tests were made the flask of toxin that was used has been found to have lost its toxic properties to a great extent. When this change took place I do not know, but if it took place after the strength of the toxin was ascertained and before the antitoxins were tested, it of course invalidates the experiments.

Aronson's antitoxin was tested at the same time and found to have a strength of 100 antitoxin-units to the cubic centimeter, as reported by Aronson. This would tend to show that the toxin lost its properties after the tests. The only other flask of antitoxin in the laboratory was ruined by the laboratory-janitor carelessly mistaking the bottle and pouring some waste ether into it. At present we have no diphtheria-cultures in the laboratory of sufficient virulence to make new toxin and check the test. Very respectfully yours,

CLARENCE O. AREY.

PATHOLOGIC LABORATORY, WESTERN RESERVE UNIVERSITY, CLEVELAND, OHIO.

### A CEREBELLAR TUMOR.

*To the Editor of* THE MEDICAL NEWS,

SIR: Some of those who read my paper on "Brain-Syphilis," published in THE MEDICAL NEWS, January 19, 1895, may be interested to learn the result of the autopsy in Case III, which revealed a tumor the size of a large English walnut, situated on the anterior border of the right cerebellar lobe and attached to it by a pedicle. Unfortunately no microscopic examination was made, so that it is unknown whether or not the growth was specific.

The diagnosis was partly right and partly wrong. It

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was correct in locating a tumor at the base of the brain on the right side, but wrong in not recognizing the involvement of the cerebellum. It was thought at the time I saw the patient that the ataxia could be accounted for by the diplopia which was present. But the situation of the tumor adequately explains the symptoms.

From the practical standpoint, however, the belief that the tumor was inoperable was fully justified.

Yours respectfully, THEODORE DILLER.

WESTINGHOUSE BUILDING, PITTSBURG.

### VERATRUM VIRIDE IN THE TREATMENT OF PUERPERAL ECLAMPSIA.

*To the Editor of* THE MEDICAL NEWS,

SIR: Mrs. S., a multipara, aged twenty years, was seized with convulsions at the commencement of labor and was in the midst of her sixth attack when I reached her. No examination of the urine was made. The patient was very edematous. The usual remedies were tried without improvement. The pulse was 140 and bounding. I gave, hypodermically, six drops of veratrum viride, diluted with a little water, every half-hour till the pulse was brought to normal, when the convulsions ceased. The os was fully dilated by this time and a living child was soon afterward born. The patient had no return of the convulsions. The only after-effect of the remedy was a very sick stomach, which soon wore off. I gave three doses of the remedy in all.

Respectfully, C. M. HYDE.

AUGUSTA, MISS.

## SOCIETY PROCEEDINGS.

### AMERICAN NEUROLOGICAL ASSOCIATION.

*Twenty-first Annual Meeting, Held at Boston, June 5, 6, and 7, 1895.*

(Concluded from page 740.)

DR. CHARLES K. MILLS opened a discussion on the subject of

CORTICAL LOCALIZATION IN THE LIGHT OF RECENT RESEARCHES INTO THE MINUTE ANATOMY OF THE CORTEX.

He said that the different theories as to the separate cortical localization of movements and of cutaneous and muscular sensation, which had been the subjects of so much controversy, have again become prominent in the light of the researches founded upon the methods of Golgi, and particularly those made by Raymon y Cajal, Von Gehuchten, Schäfer, Andriezen, and others. Those who contend against the doctrine that the Rolandic cortex is a purely motor region believe that they have received additional support for their views. The varying hypotheses with reference to the functions of the cortex were reviewed. He held that, as shown by Forel and Nansen, we have been too long handicapped by prevailing ideas of cell-action and by theories of the parts played by the cell-bodies as originating centers. Impulses are transmitted and transferred by processes as well as by cell-bodies, and the function of the latter is chiefly trophic. The new researches and theories, he believed, did not compel abandonment of former views as to special localizations, although different standpoints had been taken. Disregarding theory entirely, he believed that the subdivision of the cerebrum into physiologic lobes—higher psychic, motor, sensory (meaning for the representation of cutaneous and muscular sensations), visual, auditory, olfactory, gustatory, and naming—remained for the practical purposes of the physician and surgeon the best; while the whole of the cortex in some of its strata may be regarded as a sensory expanse, if the Rolandic portions and particularly the convolutions cephalad of the central fissure constitute a region that is related to specialized movements of various parts of the body. One calls it motor, another kinesthetic, another sensorimotor, and another executive; but for the purposes of the physician and surgeon it is a motor sphere, the irritation of which causes specialized movements, while its destruction impairs or abolishes these movements. He did not believe with Andriezen that it is necessary to regard the ambiguous and great pyramidal cells of this region, whose apical processes received the terminals of the fillet-radiations, as the first sensory cells of the cortex. Indeed, he regarded it as important to rid ourselves entirely of the idea of sensory cells and motor cells. The cortex contains localized areas. To abandon separate sensory and motor localization would, he believed, necessitate the abandonment of visual, auditory, gustatory, and other subdivisions of the cortex. The cerebral sensory area—that is, the area of representation for skin-sensations and muscle-sensations, both cortical and subcortical—from his point of view, would be that part of the cerebrum where the fillet-radiations in their most compact forms are nearest to the surface of the brain, and therefore this region might continue to be described, as it had been by him, as in the postero-parietal, quadrate, and fornicate convolutions. Destruction of this region, especially if bilateral, caused more or less impairment of sensation. He referred to cases as confirming this view. In the cerebrum, as in the spinal cord, were fields of junction between so-called cortical areas, and lesions of these fields of conjunction or at the terminations of the sensory projection-fibers might give rise to temporary phenomena; but persistent sensory disturbances were found only when the lesions involved the convolutions included by him in the general sensory area.

DR. DANA said that he had collected a number of other cases, and added some of his own, and it is because he cannot explain the clinical facts or the pathologic facts by any other hypothesis than by supposing that the motor and sensory functions are practically united that he still holds to that view. He asked Dr. Mills to explain why, when one cuts away a section of the midcentral, precentral convolution, he finds tactile anesthesia and muscular anesthesia the next day, with paralysis, on any theory except that these two functions are united in that spot. These cases are extremely numerous in the literature of neurology. If one carefully shaves off the anterior, precentral convolution in the middle part, he will get sensory disturbances and anesthesia. Dr. Mills may not perhaps be aware that in the living subject the motor cortex has been directly irritated, also in front of the fissure of Rolando, producing sensory and motor disturbances. The whole weight of clinical evidence is in favor of this view—the surgical operations, the tumors, the softenings; all are

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facts that cannot be explained on any other hypothesis so far as he knew than that the two functions are essentially identical anatomically.

It is a plausible theory that the visual centers, the center for visual sensation and auditory and gustatory sensations are separate from the motor sensations; these and cutaneous and muscular sensations would naturally have separate centers, but it does not at all hold against any actual facts; and when we come to analyze it, it is not so necessary or plausible after all. The visual sensations are not so closely related to motions as are the cutaneous and muscular sensations. For the performance of co-ordinated movement we must have a very close anatomic relationship between the muscular and cutaneous sensations. They must be close together anatomically for the purposes of a perfect machine, otherwise we could not make rapid motions; and he believed it is for that reason that nature had gradually shifted the sensory receptive cells so that they are in approximately close relations with the motor cells. He believed that perhaps if we were all agreed as to exactly what is meant by sensations, and exactly what tests we use for making sensations, and were agreed about the terminology of our discussions, we would not perhaps have so much discussion about this matter. He agreed with Dr. Mills that sensations are not closely localized, and he agreed that we should speak of sensory areas, but did not believe that we have sensory areas separate from the motor ones back in the post-central and parietal lobes or in the gyrus fornicatus. He does not accept Dr. Starr's view that the sensory centers are back of the fissure of Rolando, for, from the evidence that he has been able to collect, there is just as much proof that the precentral convolution has sensory functions as that the post-central one has.

DR. PUTNAM thought Dr. Dana's closing sentence must be accepted as absolutely certain, that the convolution in advance of the fissure of Rolando, which we ordinarily associate with the localized movements, has as much to do with sensation as convolutions anywhere else. In support of that fact he mentioned one case among many in which Dr. Warren excised a minute piece of the cortex of a young man with epilepsy beginning in one hand—a piece a few millimeters in diameter—with the result of producing paresis of the hand, paralysis in the beginning, and also a disturbance of the sensibility of the whole hand. It seemed to him that this showed that in some way the function of sensibility is closely related to the same centers with the function of motion. We are still decidedly lacking in a sufficiently adequate physiologic or psychologic conception of what we mean by these various terms. The function of sensibility must be very widely distributed.

For example, an enormous tumor was removed, almost as large as an orange, which lay directly in the motor tract, so that the whole of the motor area was removed with a good part of the internal capsule. Nevertheless that patient still has a very considerable degree of sensation left, of course modified, but he feels in a very high degree, so that although the removal of the motor convolution has affected the sensibility of the limb it has not by any manner of means destroyed it. Nerves will stand a high degree of injury, sufficient to destroy entirely their motor functions, without material interference with their sensory functions. The same thing is true as to the cord; a minute portion of it will convey centripetal impressions.

Although we must admit that the function of sensibility is closely related to the function of localized motion, we must admit that it is closely related to a great many other functions, and it remains to be seen whether, as in the case of the relation of the muscles of articulation to the function of speech, there is any center that is highly specialized. He had in mind several cases in which the sensory functions have been disturbed in connection with paresis of one hand, in which he seemed to be able to detect a greater degree of loss of sensibility or impairment of sensibility on the side of the ulnar part of the hand on the median portion.

DR. STARR said we certainly have facts that Dr. Dana has stated that are indisputable, and those who are constantly seeing cases of cerebral surgery and exsecting cysts and portions of the cortex by clots that can be removed are perfectly positive that a small limited area of the so-called motor zone does inevitably produce in almost every case more or less disturbance of sensation. He said he was completely mistaken in 1890, when he maintained that sensations were only to be referred behind the fissure of Rolando. He believed with Dr. Dana completely to-day that there are sensations produced by small lesions anterior to the fissure of Rolando, and that the sensory area of the body corresponds exactly with the motor area of the body so far as we can determine clinically. He thought it would be a mistake to draw too broad a conclusion from these facts.

It is perfectly evident that the term diffusion of sensibility is a capital one, and our present anatomy shows why it is; it is because the sensory fibers terminate in brush-like expansions, so that we must conceive of a sensory fiber as virtually terminating in a long region of the nervous system; in fact, almost throughout its entire length. Now suppose that with the continued passage of sensations over these fibers diffusing themselves in general directions habit opens the way in one direction rather than in another, that a sensation coming in might be diffused from the arm over the entire parietal arm-center and also diffused over the motor center, but inasmuch as we guide our movements by touch habitually the result is that a greater passage is opened out to the motor zone. Diffusion of the sensibility in various areas gives an explanation for the fact that a few cases are on record in which we get sensation lost alone, and the vast majority of cases show that sensation and motion are lost together. We must abandon the idea that consciousness and conscious perception, and perhaps to some extent conscious motion, are associated with the particular cells. It is just as reasonable to believe that they are associated by association fiber-action with the combined activity of various areas of the brain as they are with single cells, and he thought we will come down finally to the fact that a cell is to be regarded more as a trophic center than as a motor or sensory center.

DR. DERCUM said that the stand that had been taken enables us to explain certain other phenomena not alluded to here, namely, the fact that the cuneus atrophies in cases of blindness lasting for many years. Certain it is that we have no right to conclude from these facts that the cuneus only sees. It is probable it does

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other things. The various centers of the cortex, as we know them clinically and pathologically, are simply highways of ingress and egress to the general cortex. It gives us no right to say that this portion of the brain may do this special thing and that portion that special thing. General biologic considerations also would negative the sharp differentiation of cells into special functions. Nerve-protoplasm reacts to certain forces; to say one cell would react to one mode of motion and another to another is unphilosophic and not borne out by general biologic considerations.

DR. RICHARDSON said, in reference to the tumor of which Dr. Putnam spoke, that so far as he knew there was no destruction of the motor areas except by pressure of the growth. The tumor was very large. It took up a very large portion of the left hemisphere. But so far as he knew, there was no destruction of brain-tissue by manipulation during the operation. The man is now doing very well.

DR. COLLINS recently had a case of cerebral surgery in which the development of sensory and motor defects was rather peculiar. The young man had had his first attack of Jacksonian epilepsy in November, and the movements were contraction of the finger and thumb. When he saw him in March he had had three seizures. In conjunction with Dr. Sachs, Dr. Gerster operated on the patient over the superficial cortical thumb-and-index-finger center. As the patient bore the anesthetic very badly, it was necessary to postpone the operation after the skull had been opened; that is, cutting into the cortex was deferred. That night he had an extremely severe attack, which had been preceded a short time by a very high temperature and loss of consciousness for a long time. The following morning he had paresis of the right upper extremity and loss of sensation; that is, loss of tactile sense, loss of sense of position, and loss of muscular sense in the right hand. Three or four days afterward the dressings were opened and a good deal of distention was found from effusion into the surrounding cellular tissue, but otherwise where the operation had been done it seemed very much like normal. Then a large part of the cortex was cut out. An old pachymeningitis was present, and the Nissl stain revealed degeneration of the cortical cells. He was put to bed and his hand tested for sensibility that evening. The disturbances of sensation had all disappeared. These observations were made with extreme care.

DR. ANGELL, of Rochester, corroborated Dr. Collins because he had had a similar case. He made the prediction that there would be paralysis for five or six days at least, and to his surprise, when the boy recovered from the ether two or three hours after the operation, he tested him thoroughly and found sensory paralysis. Within twenty-four hours there was absolutely no sensory paralysis or sensory disturbance. He did not believe it possible to make an impression upon any center of the brain closely related to another center without affecting temporarily that sensory center. Whether or not this will explain the reason why we have a short paralysis of sensation when we remove the motor cortex is, of course, beyond our power yet to determine. It may be by cutting into the cortex that we affect the rootlets of the radicles from the sensory tract which we suppose reach over and produce this diffusion of sensation that has been referred to.

DR. PRINCE, of Boston, said there is a third fact that Dr. Starr had left out of consideration, and that is the fact that in many cases which had been referred to by other gentlemen there had been no loss of sensation. These must be exceptional cases that must be taken into consideration in order to find a law. A great many could be mentioned. He referred to two which he thought were of great importance. In one case he first scooped out a piece of the brain equal in size to half an orange, leaving a hole two inches in depth, involving a very large portion of the upper part of the descending convolutions, caudate lobule, and some part of the parietal convolution. Before the operation there was hemianesthesia with paralysis; after operation there was absolutely no loss of sensation whatsoever tested in the most minute way. A case like that, it seemed to him, is a crucial case, and if the word center has any meaning whatsoever it must mean a portion of brain the function of which is destroyed when taken away.

These cases show that a large portion of the motor cortex can be destroyed without loss of sensation.

DR. PUTNAM, of Boston, said that no one would speak clinically or anatomically of the sense of hearing and comprehension of spoken words as located in the same part of the brain, but we know that these two functions lean on each other internally so closely that not only do we get more or less aphasia from disturbance of the center for hearing, but we also get to a less degree a great deal, as is also the case with sensory phenomena, of disturbance of centers of comprehension in most forms of motor aphasia. In short, cerebral functions do not exist in themselves; they exist as related to other functions, and one cannot destroy one without more or less impairing others, although it may be only for a brief time.

THE PRESIDENT added that the whole of our knowledge of the neuron goes to show the very pronounced dependence of the motor neuron upon the sensory neuron. In the primary neurons it has been clearly proved that the terminal processes of the axis-cylinder of the sensory neuron are closely connected with the apical process of the motor neuron in the cord. The development of fibers in the cortex, in the brain itself, shows that the sensory tract passes distinctly upward toward the central convolution, the parietal region, rather than downward and inward toward the gyrus fornicatus, where Ferrier some time ago located the sensory centers, and where Dr. Mills still has a leaning toward placing it. In other words, judging from all the analogies in the anatomy of the brain, the higher sensory neurons must either pass upward directly to connect by their axis-cylinder processes with the cells of the motor neuron, or there must be association-tracts from these axis-cylinders going up to the motor processes. We find no association-tract passing up from the gyrus fornicatus to the central fissures; and, furthermore, although Dr. Prince had just brought up the negative cases of lesion of the central convolution without injury to sensation, there have been in the past a very large number of so-called negative cases about the central convolution with absolutely no motor disturbance. Most of those, with our increasing knowledge, have been explained away, and ten negative cases do not afford as much evidence as one positive case. The positive cases of sensory disturbances following lesions behind and in front of the

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fissure of Rolando are increasing in number and become very conclusive. The positive cases of lesion in the neighborhood of the gyrus fornicatus are very few and far between.

DR. MILLS, in closing, claimed that this discussion confirmed the standpoints he had always taken. It seemed to him astounding that Dr. Dana and others here speak of the cases in which physiologic or pathologic lesion of the motor cortex as exceptionally producing alone motor symptoms. Every one of us must admit the cases referred to by Dr. Starr and Dr. Dana, and by Dr. Putnam and Dr. Knapp's case, because we know they have been well studied and well recorded; that is, cases in which sensory phenomena of some sort have accompanied the motor phenomena in cases of destructive lesion of the pre-Rolandic cortex. We must also admit the two or three cases in which certain experiments upon the cortex in life have caused peculiar temporary disturbances of sensation at the time. These cases of sensory disturbance from strictly limited lesion of the motor cortex, cases in which the symptoms were motor alone instead of sensory, are as one-hundred to one, and we do not think it longer worth while to collect these cases. In a score of these cases the patients have been examined in life with the greatest care and the lesions located in death, and in cases of operation the greatest care had been taken in studying sensory phenomena, and those sensory phenomena had not been present. He mentioned two cases in which the motor phenomena persisted day after day, and day after day changes were noted until the patient was largely restored as regards motion, sensation not having disappeared at all. He did not think it worth while, therefore, to pit these cases which Dr. Dana had collected as an argument of great value against the very numerous cases that teach the other thing. However, he must acknowledge the other cases. Have we no explanation for these cases? He would suggest three or four explanations for these cases in which destructive lesions cephalad of the sensory area have given rise to sensory disturbance. One explanation, which may seem far-fetched, is that these cases are somewhat of the nature of the cases in which we have sensory disturbances in hystero-traumatisms. Certainly the traumatism inflicted by the surgeon's knife, or by injury or disease, in acute cases, or by operation such as Dr. Dana refers to, is greater than that which we have in these other cases. Another explanation is that he suggested in 1888, and which grows out of these later researches on cortex anatomy. Undoubtedly every area of the cortex, visual, auditory, gustatory, sensory, etc., must be related to and anatomically connected with the motor regions of the cortex. Now it is through the destruction of these terminals of the fillet-radiations, whether they be continuous with the apical process of the pyramidal cells or simply constitute a field of conjunction, we have a separation between the motor and sensory areas, and at least temporary disturbances of sensation would very likely in many instances result. It is a great cortical sensory expanse in this sense, but there is one region in the brain in which these fillet-radiations are placed between the cortex, and which for the surgeon's and physician's purpose should be regarded as the sensory region. It is next to the motor region and between the motor and great sensory region. It has a separation, and one which is practical for our purposes.

The remarks made by Dr. Starr, he thought, were on the whole confirmatory of what he had stated. It would seem, therefore, that the weight of argument and the weight of the evidence advanced here are still in favor of the localizations to which he had always clung, and which were believed in by Charcot, Ferrier, and others. He had never claimed that the gyrus fornicatus was the sole region of common sensibility in the cortex of the brain. His own position has always been that the sensory cortex proper includes at least a portion of the gyrus fornicatus, the quadrate lobule, and the posterior parietal convolutions, and the arguments he advances must stand for the motor region, and not for a part of it.

DR. DANA asked if Dr. Mills would state specifically whether he denies that the central convolutions have any sensory function; if he absolutely excludes sensory function from the central convolution.

DR. MILLS replied that for our purposes and for our practical idea of a center or area he believed the central convolution or convolution cephalad of the central fissure had no sensory function; he believed the posterior central convolution and the posterior parietal and the region he had named perhaps take part in sensory phenomena, that is, the sensory region posterior to the central fissure.

### TUMOR OF CEREBELLUM, WITH AUTOPSY,

was the title of a paper read by DR. E. D. FISHER, of New York. The interesting features of the case were the absence of any symptoms that could be directly referred to the cerebellum. There was no inco-ordination —nor any staggering in the gait. The pain was situated principally over the right orbit. The only well-defined cranial lesion was that of the eighth nerve on the right side, there being absolute deafness. There was possibly a slight involvement of the seventh nerve on the right side, and the patient said she had complete loss of smell. The general symptoms of a cerebral tumor—*i. e.*, headache, convulsion, and optic neuritis—were present. A lesion at the base of the brain was suggested by the cranial nerve lesion, with involvement of the cerebellum; the absence, however, of cerebellar symptoms and the localization of the pain so definitely over the right orbit led to an exploratory operation in that situation. The tumor was not found at the time, but there was a complete relief from the pain and the convulsions until the time of death, eleven weeks later, which was caused by a septic basilar meningitis. Autopsy revealed a glioma involving the right cerebellar hemisphere.

DR. PRESTON, of Baltimore, related

### THREE CASES OF TUMOR OF THE BRAIN, WITH AUTOPSY.

The first case was that of a boy, aged thirteen years. For a year he had what looked like ordinary epileptic attacks, which were very much lessened by the bromids. Then he suddenly developed diplopia, with some neuroretinitis. Vision was greatly reduced, and there was at first left lateral achromatopsia, and afterward left hemianopsia. Gradually he lost entirely both sight and hearing. The reflexes, both superficial and deep, were lost. He complained of most intense headache, and there was gradual failure of mental power. The autopsy revealed a large tumor, involving the entire right temporal lobe; the occipital lobe was softened and broken

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down, but the cortical portion of the occipital lobe was not involved. The tumor was a sarcoma. The second case was interesting from the fact that the tumor, a small papilloma, not larger than a partridge-egg, burying itself in the right superior occipital convolution, produced intense headache, with double optic neuritis. The third case showed a large sarcomatous tumor involving the temporal lobe, all except the first convolution, the greater part of the occipital lobe, and the lateral lobe of the cerebellum. The symptoms were not very well marked, except headache and mental disturbance. It was interesting to note that the first temporal convolution was not involved, though the rest of the lobe was virtually destroyed, and in accordance with our accepted views concerning the auditory center there was deafness.

A specimen of

BRAIN-TUMOR

was presented by DR. G. L. WALTON, of Boston. The main interest was the question whether an operation might have proved successful. The patient was fifty-three years of age, and complained of frontal headache only two months before his death. Attacks of vertigo, loss of speech, and severe general convulsions preceded and followed. Aphasia, agraphia, right hemiplegia, and right hemianopsia were present, with double optic neuritis and loss of superficial reflexes on the right. The tumor occupied the angle between the Rolandic and Sylvian fissures. Extension forward under the healthy cortex reached beyond the transverse frontal sulcus. It was fairly well defined, but with no distinct capsule. The center was necrotic. The symptoms suggested so extensive infiltration that operation was considered to offer small hope, but the extension backward was not so great as the hemianopsia would indicate, a fact which, together with recently published cases of removal of large infiltrating gliomata, would lead, perhaps, to a somewhat more hopeful prognosis in another case of this nature.

The three preceding papers were discussed together.

DR. STARR referred to a case of infiltrating glioma in the arm-area of the motor zone. Symptoms developed in the course of a year: Headache, optic neuritis, spasm of the right hand and arm, and later paresis and loss of sensation. Operation revealed a glioma, very extensive and very vascular. It was impossible to remove it safely. Death followed within a few hours. He mentioned a case of suspected tumor of the corpora quadrigemina. A flap of bone was removed from the parietal region, and an attempt to puncture the ventricles was unsuccessful. There was no relief of pain. He concluded that operation under such conditions was useless. He agreed with Dr. Fisher that the position of pain is of no value in localization.

DR. DANA said that the use of the chisel upon children and infants is a bad method of operation. He recommended the use of the improved revolving electric saw, as used by Dr. Powell, of New York.

DR. GEORGE W. JACOBY, of New York, had witnessed two operations upon adults in which the electric saw was used. He considered the method objectionable, as there was more hemorrhage, and a wedging of the saw interfered with the operation. He spoke favorably of Quincke's lumbar puncture for relief of intracranial pressure.

DR. DERCUM spoke in favor of a perpendicular burr worked by a dental engine.

DR. COLLINS had seen a case in which, after each series of blows from the mallet and chisel, the pulse fell from 60 or 70 to 35 or 40.

DR. G. M. HAMMOND had witnessed one operation with the electric saw upon an adult and many upon children. The saw as now used has a greater electromotive force to operate it than formerly, and this obviates the earlier difficulties as mentioned by Dr. Jacoby.

DR. DERCUM had noticed the same symptoms following the use of the chisel as described by Dr. Collins.

A case of

INJURY OF THE ANGULAR GYRUS FROM FRACTURE OF THE SKULL

was reported by DR. C. EUGENE RIGGS, of St. Paul.

HEREDITARY CHOREA, WITH AUTOPSY,

was the title of a paper by DR. CHARLES L. DANA, of New York.

DR. MILLS looked upon the case as very important. It suggested the true explanation of a large class of cases (such as Friedreich's ataxia, hereditary chorea, spastic paralysis), that these are teratologic.

DR. H. A. TOMLINSON, of St. Peter, read a paper on

INSANITY AND PHTHISIS, THEIR TRANSMUTATION, CONCURRENCE, AND COEXISTENCE.

He considered that pulmonary tuberculosis and insanity are equally potent factors in the production of brain-instability. The preponderance of degeneration among those having an heredity of tuberculosis is significant, as indicative of the influence of this disease in one generation, in determining a defective nervous system in the next, and his tables also indicated that the more direct the heredity the greater is the probability of transmutation. Disease-processes which are constitutional or diathetic attack primarily one or other form of tissue, with the result of progressive degeneration and disintegration if the tissue be epithelial. However, if the connective tissue is the seat of a disease-process, it either increases rapidly in amount, and remains permanently increased, or undergoes liquefaction.

The most common form of degeneration among the insane is the connective-tissue type, or the premature and excessive manifestation of the changes which ordinarily occur in senility. The preponderance of imperfectly developed connective tissue in one generation implies the excessive development of functional tissue in the next, thus accounting for the transmutation of disease-tendency. These changes are abundantly illustrated in the tuberculous and defective children of neurotic or syphilitic parents.

## THIRD DAY—JUNE 7TH.

DR. WM. N. BULLARD, of Boston, read a paper on

THE DIAGNOSIS OF PACHYMENINGITIS INTERNA HÆMORRHAGICA.

He considered the pathology of this affection as yet unsettled, though he believed the weight of evidence to be in favor of a non-inflammatory origin. There are several forms of subdural hemorrhage, but consideration was given only to the apparently spontaneous, non-traumatic

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affection occurring in adults. The points of differential diagnosis between this condition and other forms of intracranial hemorrhage are as follows: (1) subdural hemorrhage is peculiarly common in paralytic dements and in the chronic insane, and not rare in chronic alcoholics; (2) the onset is often more gradual than in ordinary intracranial hemorrhage, and the irritative stage lasts unusually long; (3) the symptoms of irritation are prominent. General epileptiform convulsions and localized convulsive movements are likely to occur. (4) The peculiar rigidity occurring in one limb in connection with symptoms of hemorrhage, and when no affection like tuberculous meningitis exists, is very significant. The treatment in this condition is removal of the clot. In all more serious cases this should be done as soon as the disease is recognized. A case was reported in which operation was performed and the clot removed, although too late to save the life of the patient.

DR. TOMLINSON thought the term pachymeningitis a misnomer. The primary condition is non-inflammatory. In syphilitic cases there are no signs of active inflammation, but changes in the bloodvessels.

DR. FISHER believed that the blood comes from newly formed vessels which have resulted from inflammation, and asked what the special indications were for operative interference.

DR. BULLARD answered that operation was indicated when symptoms of pressure existed. The question as to the origin of the disease remains *sub judice*.

DR. E. W. TAYLOR, of Boston, presented a case of

TABES AND MULTIPLE SCLEROSIS.

There had been probable syphilitic infection twenty years before. The patient first noticed a tremor of the hands fourteen years ago, followed by pain of a lancinating character in the legs, associated with general muscular weakness. There were gradual increase of these symptoms, with occasional paresthesia of the legs; girdle-sensation and difficulty in micturition; loss of knee-jerk; Argyll-Robertson pupil; lancinating pains; disturbances of sensibility; so that the diagnosis of tabes dorsalis was unquestioned. In addition there were slight nystagmus, spasm of the posterior thigh-muscles, muscular weakness, hesitating speech, and absolutely characteristic intention-tremor masking the little ataxia present.

DR. PRINCE then presented microscopic specimens from a case of

CEREBRO-SPINAL SYPHILIS.

DR. JOSEPH COLLINS, of New York, read a paper on the

PATHOLOGY AND MORBID ANATOMY OF AMYOTROPHIC LATERAL SCLEROSIS.

He referred to the moderately constant clinical picture of amyotrophic lateral sclerosis, and the variable pathologic conditions on which it has been found to be dependent, and pointed out that the number of cases in the literature that were well substantiated by autopsy were fewer than one might be inclined to think. Reference was also made to the different views held by the followers of Charcot and Erb on one hand, and of Gowers, Leyden, and others on the other hand, as to whether the disease is primarily of the pyramids, with secondary involvement of the anterior horns, or whether it is but a variation of the common form of progressive muscular atrophy. The case was reported of a man, thirty-three years of age, in which after death atrophy of the ganglionic cells throughout the cord was found, Throughout the cord, but especially in the cervical and dorsal regions, there were evidences of excessive vascularity, in the shape of large, thickened bloodvessels, especially in the gray matter, and there were spaces from which the vessels had disappeared. In the cervical cord, corresponding to the place of apparent softening in the recent state, was found great disorganization of the ground-substance of the anterior horns. In the medulla there was degeneration of the nuclei throughout the entire extent, with the exception of the extreme caudal end. There was also slight degeneration in the tenth and common vago-accessorio-glosso-pharyngeal nucleus, but none in the pyramids of the medulla. The root of the twelfth nerve was small and delicate. A second case occurred in a male, forty-eight years of age. Cultures made from a piece of cord from the cervical region revealed the presence of the tubercle-bacillus in considerable numbers. In the cervical region there was degeneration in the crossed and direct pyramidal tracts, with almost complete destruction of the anterior horns. In the dorsal region there were sclerosis of the crossed pyramidal tracts, slight sclerosis of the ascending cerebellar tract, diffusedly distributed dilated bloodvessels, some with very much thickened walls; extensive atrophy of the cells of the anterior horns, some degeneration of the lumbar and sacral regions, and in the dorsal, but in less degree. In the medulla atrophic changes were found in the nucleus of the twelfth nerve. A hemorrhage of ancient date was present in the dorsal region.

DR. WILLIAM C. KRAUSS, of Buffalo, read a communication entitled

PERONEAL MUSCULAR ATROPHY, WITH AUTOPSY.

He reported the case of a man, seventy-eight years of age, who, at the age of eighteen, began to notice a weakness of the leg-muscles. This weakness was accompanied by atrophy in the peroneal and hamstring muscles of both legs and extended to the muscles of the thigh, the left thigh being much more affected than the right. Double club-foot of the *pes varus* variety resulted, and also a double *genu valgum*. The tendon-reflexes were absent on the left side, and also on the right, with the exception of the knee-jerk. Fibrillary contractions and sensory disturbances were entirely wanting. There were present lordosis and scoliosis of the lumbo-sacral region. The muscles of the upper extremities were unaffected. The patient gave no history of any infantile disease or of poliomyelitis, and ascribed the affection to an accident. The patient died from uremia. Microscopic examination of the spinal cord revealed atrophy of the anterior horns, especially on the left side, extending from the caudal part of the thoracic region to the conus medullaris. The multipolar cells of the antero-lateral group were visibly affected, in places having disappeared, in others undergone atrophy or degeneration, while the median group was less affected. The white matter was somewhat sclerosed, particularly in the antero-lateral and posterior columns, but not more than the age of the patient would warrant.

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DR. COLLINS remarked that unless Dr. Krauss establishes that this was not a case of chronic anterior poliomyelitis, then it should not be accepted as one of the peroneal type of muscular atrophy.

DR. J. W. PUTNAM, of Buffalo, reported a case of

WRITER'S CRAMP

in a telegrapher. The man had previously had telegrapher's paralysis of the wrist, but later the symptoms increased to such an extent that the mere suggestion of writing, or the thought of writing, would bring on the spasm. This involved, in addition to the arm-muscles, the trapezius and the sterno-mastoid of the left side. The result was that, in attempting to write, the head would twist round to such an extent that the man was unable to see the paper. The patient was treated by hypnotism and deep muscular injections of atropin, with complete recovery after the lapse of two months.

DR. RIGGS related that he had seen a similar case, but that the trapezius was not involved. Much relief was obtained from the use of hyoscin hydrobromate.

DR. LESZYNSKY asked whether the favorable result was due to hypnotism or to atropin.

DR. PUTNAM replied that he attributed the recovery to suggestion through hypnotism.

DR. SMITH BAKER said that he had come to consider the associated contractions (those of the shoulder, head, etc.) as natural outcomes of the habitual attitude assumed by everyone whenever they intend to do any particular thing whatever. They may be designated as associated intention-contractions. The origin of these undoubtedly dates back to the time of either learning to write or of some position incidentally assumed for comfort, or other favoring result. The cure may come about through any means whereby the associations are broken up. Possibly writer's cramp itself is most frequently of purely psychic origin, and so rest, or hypnotism, or any other efficient psychic impression kept up long enough will result in recovery.

DR. SMITH BAKER, of Utica, read a paper on

AUTOMIMESIS,

which he defined as the process whereby impressions from the outside world or conceptions arising in the mind are first set as copy-models, and then automatically reproduced more or less indefinitely, until results detrimental or otherwise are attained. As usually considered, imitation means the reproduction of features found in other individuals. Automimesis or self-mimicry means the serial reproduction of characteristics dominant at some particular time in one's own mind. How such a copy-model first comes to be set and subsequently followed is often a mystery, but a pain, or shock, or word, or muscular tension, or unusual idea, or any incidental experience undoubtedly affords the requisite suggestion—imitative impulse. This is often seen in the development of hysteria, neurasthenia, melancholia, insistent ideation and allied states and tendencies, while evidence is accumulating to show that the succeeding automimetic series is a quite natural outcome of such an imitative impression. Cases illustrating automimetic development of disease were given, and the conclusion reached that possibly in this way there have been opened up points of view both as to etiology and therapy which are of value to neurologists.

DR. RALPH L. PARSONS, of Sing Sing, presented drawings and photographs illustrative of a new system of baths inaugurated at the institution with which he is connected.

DR. G. L. WALTON, of Boston, read a paper on

OBSTETRIC PARALYSIS.

He said that it is assumed that this condition is due to a stretching of the brachial plexus at a spot above the origin of the supra-scapular nerve. This does not account for the escape of the branch to the pectoralis major, which passes off immediately below. The same difficulty presents itself in the theory of pressure against the clavicle. It was suggested that the supra-scapular nerve is probably bruised independently against the supra-scapular notch or spine of the scapula, while the plexus below is bruised against the clavicle. The branch to the pectoralis major escapes through having no bony point of fixation. Probably rotation of the face away from the shoulder that is caught at the brim of the pelvis aids the stretching, as well as the drawing away of the head, already described in this connection.

The following papers were read by title: "Home-treatment of Insanity," by Dr. H. M. Bannister, of Chicago; "The Dual Action of the Brain," by Dr. Samuel B. Lyon, of Bloomingdale; "An Operative Procedure for the Relief of Basilar Meningitis Limited to the Posterior Fossa," by Dr. J. T. Eskridge, of Denver; "Fissural Studies of the Brain of Two Philosophers," by Dr. Burt G. Wilder, of Ithaca; "The Association of Tabes and Paretic Dementia," by Dr. Theodore Diller, of Pittsburg; "Must Acute Paranoia be Admitted into Our Nomenclature?" by Dr. William Noyes, of Foxboro; "The Conservative Value of the Play-impulse," by Dr. Irving G. Rosse, of Washington; "Telegrapher's Paralysis," by Dr. James Hendrie Lloyd, of Philadelphia; "Case of Multiple Neuritis in an Infant," by Dr. Graeme M. Hammond, of New York; "Pseudo-neurasthenia," by Dr. Morton Prince, of Boston.

The following were elected to active membership: Dr. Hugh F. Patrick, of Chicago; Dr. Edward Wyllys Taylor, of Boston; Dr. Leopold Stieglitz, of New York; Dr. John Jenks Thomas, of Boston; Dr. H. L. Worcester, of Danvers; Dr. B. Onuf, of Brooklyn, N. Y.; the following were elected to honorary membership: Dr. S. Weir Mitchell, of Philadelphia; Dr. Camillo Golgi; Dr. L. Edinger; of Frankfort; Dr. Ramon y Cajal, of Barcelona; Dr. Dejérine, of Paris.

The following officers were elected for the ensuing year: *President*, Dr. F. X. Dercum, of Philadelphia; *Vice-Presidents*, Dr. George J. Preston, of Baltimore, and Dr. C. E. Riggs, of St. Paul; *Secretary and Treasurer*, Dr. G. M. Hammond, of New York.

## NEWS ITEMS.

***The American Orthopedic Association*** will hold its ninth annual meeting at Chicago, September 17, 18, and 19, 1895. The following papers have already been promised: On Forcible Correction, and Corrective Jackets, in the Treatment of Scoliosis, by Dr. Barnard Bartow, of Buffalo; Idiopathic Osteoarthrosis, by Dr. Wallace Blanchard, of Chicago; (1) The Use of the Plaster Jacket in Caries and the Effect of Position on the Spine. (2)

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Caries in Adults, by Dr. E. G. Brackett, of Boston; (1) Operative Measures in Caries of the Spine. (2) Treatment of Slipping Patella, by Dr. E. H. Bradford, of Boston; On the Surgical Treatment of Congenital Dislocations, by Mr. Bernard Brodhurst, of London, Eng.; Some Cases of Osteoclasis with the Lorenz Osteoclast, by Dr. F. S. Coolidge, of Chicago; Improved Osteoclast, by Dr. Nicholas Grattan, of Cork, Ireland; title not announced, Dr. V. P. Gibney, of New York; New (anterior) Spine Brace, with Exhibition of Patients, by Dr. A. E. Hoadley, of Chicago; title not announced, Dr. A. B. Hosmer, of Chicago; The Deformity of Hip-disease, by Dr. A. B. Judson, of New York; The Causative Relation of Suppuration to Tuberculous Meningitis in Joint and Spine Disease, by Dr. Samuel Ketch, of New York; Ambulatory Treatment of Pott's Disease, by Dr. R. W. Lovett, of Boston; Club-foot, by Dr. R. W. Lovett and Dr. John Dane, of Boston; (1) Congenital Absence of Radii, with Operation. (2) Exhibition of Hip-joint Brace. (3) Plaster-of-Paris in Orthopedic Surgery. (4) Specimens of Tuberculous Bone-disease, by Dr. S. L. McCurdy, of Pittsburg; (1) The Rawhide Corset Spinal Brace. (2) A Review of the Treatment of Hip-disease, by Dr. B. E. McKenzie, of Toronto; Spasmodic Wry-neck, by Dr. T. H. Myers, of New York; title not announced, Dr. C. B. Packard, of Denver; The Deformities Produced by Acute Inflammatory Lesions in Bone, by Dr. Roswell Park, of Buffalo; (1) The Report of a Case of Congenital Dislocation of the Shoulder, and an Operation for its Relief. (2) The Treatment of Fracture from an Orthopedic Standpoint. (3) How the Orthopedic Surgeon Should Treat Abscesses (tuberculous and purulent), by Dr. A. M. Phelps, of New York; The President's Address, by Dr. John Ridlon, of Chicago; One-thousand Cases of Lateral Curvature of the Spine Treated by Posture and Exercise, by Dr. Bernard Roth, of London, Eng.; The Anterior Spine-brace, by Dr. J. C. Schapps, of Brooklyn; Some Considerations of the Mechanical Arrangements Around the Hip-joint, by Dr. H. M. Sherman, of San Francisco; several papers, titles not announced, Mr. Noble Smith, of London, Eng.; A Case of Double Congenital Knee-luxation, by Dr. H. L. Taylor, of New York; (1) Pain in the Back. (2) Metatarsalgia. (3) The Use of Mechanical Support in the Treatment of Scoliosis, by Dr. L. A. Weigel, of Rochester; Observations on Weak-foot, with particular reference to its Predisposing Cause, its Diagnosis, and its Cure, by Dr. Royal Whitman, of New York; A Report of Seventy Cases of Splicing of the Tendo-Achillis, by Dr. H. Aug. Wilson, of Philadelphia; The Treatment of Scoliosis by Light Gymnastic Exercises, by Dr. J. K. Young, of Philadelphia.

Papers have also been promised, if there is time for their reading, by Drs. L. L. McArthur, Weller Van Hook, Robert Tilly, Joseph Zeisler, H. P. Woley, and other gentlemen of Chicago, but these papers will not be presented except by vote of the Association.

***The Colorado State Medical Society*** held its twenty-fifth annual convention in Denver, June 18th, 19th, and 20th, and elected the following officers for the ensuing year: *President*, Dr. I. B. Perkins, of Denver; *First Vice-President*, Dr. A. J. Robinson, of Aspen; *Second Vice-President*, Dr. Lee Kahn, of Leadville; *Third Vice-President*, Dr. Mary Ambrook, of Boulder; *Corresponding Secretary*, Dr. E. R. Axtell, of Denver; *Recording Secretary*, Dr. Laura Liebhart, of Denver; *Assistant Recording Secretary*, Dr. H. H. Bucknum, of Denver; *Treasurer*, W. F. McClelland, of Denver. The meeting was the largest and best the society has ever held. Over a hundred-and-fifty members were present. Sixty papers were presented, and addresses were delivered by Professors Ridlon and Vaughan. A number of social features were introduced, and the meeting was voted a success. Sixty-two new members were added to the membership list.

***Meetings of State, National, and International Medical Societies:***

| | Meets. | Next meeting. |
|---|---|---|
| American Dermatological Association. | Sept. 17, 1895 | Montreal, Can. |
| American Electro-Therapeutic Association. | Sept. 3, 1895 | Toronto, Can. |
| American Medical Association. | May 5-8, 1896 | Atlanta, Ga. |
| American Microscopical Society. | August 21-23, 1895 | Ithaca, N. Y. |
| American Ophthalmological Society. | July 24, 1895 | New London, Conn. |
| American Orthopedic Association. | Sept. 19-21, 1895 | Chicago, Ill. |
| British Medical Association. | July 30-Aug. 2, 1895 | London, England. |
| Canadian Medical Association. | Aug. 28-30, 1895 | Kingston, Ont. |
| Idaho State Medical Society. | Sept. 9-11, 1895 | Boise City, Id. |
| Illinois State Medical Society. | May 19, 1896 | Ottawa, Ill. |
| International Congress of Dermatology. | August 4-8, 1896 | London, Eng. |
| International Congress of Gynecology & Obstetrics. | September, 1896 | Geneva, Switzerland. |
| International Congress of Hydrobalneotherapy. | 1895 | Ostend. |
| International Congress of Otology. | Sept. 23-26, 1895 | Florence, Italy. |
| International Medical Congress. | August, 1896 | Moscow, Russia. |
| Medical Association of Georgia. | April 15, 1896 | Augusta, Ga. |
| Medical Association of the State of Alabama. | April, 1896 | Montgomery, Ala. |
| Medical Society of the State of New York. | Jan. 28, 1896 | Albany, N. Y. |
| Medical Society of Virginia. | September 3 | Wytheville, Va. |
| Mississippi Valley Medical Association. | September 3-6 | Detroit, Mich. |
| New Mexico Medical Society. | July 10, 1895 | Las Vegas, N. M. |
| New York State Medical Association. | October 15-17 | New York City |
| Ohio State Medical Society | May 27-29, 1896 | Columbus, O. |
| Texas State Medical Society. | April, 1896 | Ft. Worth, Texas. |
| Tri-State Medical Society of Illinois, Iowa, and Missouri. | Oct. 1-4, 1895 | Des Moines, Iowa. |
| Vermont State Medical Society. | October 10, 11 | Burlington, Vt. |

***Medical Director Albert C. Gorgas, U.S.N.***, died June 29th, at Germantown, Philadelphia, at the age of sixty years. He entered the navy as an Assistant Surgeon in 1856. From 1889 to 1893 he was in charge of the Naval Hospital at Philadelphia, and after this was on duty at the Naval Museum of Hygiene at Washington.

***The Medical and Surgical Reporter*** has removed from Philadelphia to New York.

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# THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

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## ORIGINAL ARTICLES.

### THE ETIOLOGY OF DIPHTHERIA.[1]

BY FREDERICK G. NOVY, SC.D., M.D.,
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OF the infectious diseases there is scarcely one that has passed through as interesting and as remarkable a history as diphtheria. Numerous investigators attempted, at quite an early date, to throw light upon the cause of this dreadful disease. Their efforts, however, were largely unsuccessful, owing to the extreme difficulties presenting themselves at that early period in the study of bacterial affections. In the normal individual the mouth harbors a large number of micro-organisms, and in diseases of the mouth or throat the number and kind of micro-organisms are still further increased. No wonder, then, that this abundant and luxuriant flora of the mouth served to divert and nonplus the early pioneers in this important study.

One thing, however, was certain, namely, that the cause of diphtheria was a microbe—a living organism. It is only too well known that diphtheria is a communicable disease, that it is transmissible from one individual to another. This fact can be explained in but one way, and that is that a living organism is transmitted from one person to another. The attribute of life is essential to the cause of an infectious disease, and diphtheria certainly occupies a front rank in this class.

Our present knowledge regarding the microbic cause of diphtheria may be said to begin in 1883, when Klebs found, by microscopic examination of a number of cases of diphtheria, the bacillus that today is known throughout the world as the cause of diphtheria. During the following year Loeffler succeeded in isolating the bacillus in absolutely pure culture. He was therefore able to describe minutely its morphologic, tinctorial, cultural, and biologic properties, and by so doing furnished a firm, permanent, reliable foundation on which subsequent workers could build with that confidence which has brought about one of the greatest achievements in medicine.

Loeffler confirmed the observations of Klebs regarding the presence of this bacillus in the false membranes of this disease. In twenty-seven diphtheric membranes examined he found the bacillus present in about one-half. On the other hand, in some of the sections examined the bacillus could not be found—a failure due undoubtedly, as he himself points out in 1890, to the fact that some of the early cases studied were not typical cases of diphtheria. Between 1884 and 1890 he examined twenty-one fresh cases of diphtheria, and in every one of these the characteristic bacillus was demonstrated. Inoculations with pure cultures of this bacillus into the trachea of rabbits, guinea-pigs, chickens, and doves produced a croupous-like condition, due to the formation of false membranes. Similar results were obtained by vaginal inoculations in guinea-pigs, and also by applications to the conjunctiva and pharynx. When injected subcutaneously into guinea-pigs a hemorrhagic edema with grayish-white exudate formed.

The fact that the bacilli were always found in guinea-pigs at the point of inoculation, and not within the organs, led Loeffler to conclude that the micro-organisms produced a powerful poison which was absorbed and carried throughout the body. This view was subsequently established by Loeffler's own researches in 1887 and 1888 on the poisonous products of the bacillus, and, above all, by the classic researches of Roux and Yersin in 1888 and of Brieger and Fraenkel in 1890.

Notwithstanding the frequent presence of this bacillus in the disease, and the diphtheria-like results obtained by inoculating animals with pure cultures of the bacillus, Loeffler, with characteristic modesty and reserve, with the true spirit of a scientific investigator, refrained from designating it as the cause of diphtheria. This hesitation was due to several reasons. In the first place, he had found the same bacillus, identical morphologically and physiologically, in the mouth of a healthy child. Again, the typical diphtheric paralyses observed in man were not reproduced in animals; also, when applied to the uninjured mucous membranes of animals, the cultures had no effect. Furthermore, as already stated, the bacillus was not always found in the sections of membranes examined; and, lastly, the bacilli showed a different arrangement in the false membranes from animals compared with those from man. In view of these facts, Loeffler came to the conclusion that, while the bacillus was probably the cause of diphtheria, more investigation would be necessary to prove this relationship definitely.

The doubt expressed by Loeffler as to the relation

[1] Read before the Michigan State Medical Society, June 5, 1895.

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of the bacillus to diphtheria unquestionably contributed to discourage other investigators, for during the next three years practically no further studies were made. In his second paper, in 1887, Loeffler pointed out the constant presence of the germ in ten cases, and at the same time discovered the pseudo-diphtheria-bacillus, which differed from the bacillus first studied, in addition to slight morphologic and cultural differences, in the absence of any pathogenic power with respect to guinea-pigs.

In the following year Hofmann, whose untimely and tragic death will ever remain in the memory of bacteriologists, studied the occurrence of the Klebs-Loeffler bacillus in diphtheria. He succeeded in finding the bacillus in six out of eight cases, but he failed to establish any specific relation between the bacillus and the disease, for much the same reasons that led Loeffler to question the correctness of his own interpretations. Thus Hofmann met with the non-pathogenic, pseudo-diphtheria-bacillus in diphtheric membranes and also in twenty-six out of forty-five diseased but not diphtheric mucous membranes. He likewise demonstrated a marked variation in the virulence of the Loeffler bacillus obtained from different cases, and from old cultures. Furthermore, the virulent bacillus was found in a case of measles, and in one individual out of eleven in whom no throat-complication existed.

In December, 1888, Roux and Yersin published their first memoir on diphtheria, in which they were able to take the definite stand that the Klebs-Loeffler bacillus was the specific cause of diphtheria. They considered themselves justified in taking this position because: (1) they found the Loeffler bacillus present in each one of the fifteen cases of diphtheria examined; (2) by means of pure cultures of the bacillus they reproduced false membranes in animals, just as Loeffler had done; (3) they succeeded with pure cultures in producing paralyses in animals similar to the post-diphtheric paralyses in man; (4) they demonstrated that the bacillus gives rise to poisonous products which, when injected into animals, produced either death or paralyses, according to the dose. This publication of Roux and Yersin attracted widespread attention, and led numerous workers to take up the subject of the etiology of diphtheria. The result of these investigations was the confirmation of Roux and Yersin's conclusions, and, with this achievement once accomplished, it became possible for Behring to enter definitely upon that research which has given, and will give, invaluable benefits to mankind.

Let us consider now, in a somewhat general way, the evidence that has been brought forward during the past ten years regarding the etiology of diphtheria. In the first place, in order that a micro-organism shall be considered as the cause of a disease, the requirement is exacted that it shall be found in every case of that disease. This so-called first rule of Koch, framed at a very early period in the history of the etiology of infectious diseases, assumes some things that, in the light of our present knowledge of the *rôle* of micro-organisms in infection, cannot be disregarded. Thus, that which for clinical or anatomic reasons is described as a definite disease may in reality be far from being an entirety. A rational or natural classification in general biologic science is based upon natural, intimate relationships, and not upon mere appearance or form. The division of diseases by the clinician, based on mere clinical observations, or by the pathologic anatomist, based on anatomic relations, are largely classifications of convenience, and in no wise bring out the relation that is closest and most intimate to the disease—that of the cause. It does not require much reasoning to show that what is clinically or anatomically designated as a disease may have only one cause or may have several distinct causes. In the latter case, what was called a disease becomes, through the study of its etiology, a group of diseases. The old typhoid fever has passed through such a history, and we may say in advance that diphtheria has recently experienced a similar development.

We may now ask ourselves, Is the Loeffler bacillus present in every case of diphtheria? Is the first rule of Koch demonstrated? From the earliest investigations of Klebs in 1883, and of Loeffler in 1884, until the present day, it is evident that the Loeffler bacillus is present in a very large proportion of the cases of clinical diphtheria. In the following table an effort is made to compile all available reports of bacteriologic examinations, from outside the United States, of diphtheria, made in ten cases or more, showing the number of cases examined and the number of times the Loeffler bacillus has been found:

| | No. of cases examined. | No. of times Loeffler bacillus found. | | No. of cases examined. | No. of times Loeffler bacillus found. |
|---|---|---|---|---|---|
| Sörensen, 1886 | 10 | 7 | Baginsky, 1892 | 154 | 118 |
| Roux & Yersin, 1888 | 15 | 15 | Hoppe-Seyler, 1892 | 37 | 23 |
| Kolisko & Paltauf, 1889 | about 50 | In nearly all. | Loeffler & Strübing, 1894 | 100 | 75 |
| Ortmann, 1889 | 16 | 15 | Plaut, 1894 | 80 | 22 |
| Zarniko, 1889 | 20 | 18 | Ritter, 1894 | 225 | 225 |
| Babes, 1890 | 42 | 42 | Phillip—Baginsky, 1894 | 333 | 332 |
| Brieger & Froenkel, 1890 | 22 | 22 | Chaillou & Martin, 1894 | 198 | 155 |
| Beck, 1890 | 53 | 52 | Roux, Chaillou, and Martin, 1894 | 448 | 320 |
| D'Espine, 1890 | 15 | 11 | Feer, 1894 | 44 | 38 |
| Escherich, 1890 | 22 | 20 | Kossel, 1894 | 117 | 117 |
| Klein, 1890 | 22 | 22 | Katz, 1894 | 128 | 128 |
| Loeffler, 1890 | 21 | 21 | Hilbert, 1894 | 11 | 11 |
| Roux & Yersin, 1890 | 80 | 61 | Bernheim, 1894 | 12 | 11 |
| Spronck, 1890 | 13 | 13 | Bergmann, 1894 | 46 | 46 |
| Morel, 1891 | 86 | 96 | Schmorl, 1894 | 10 | 7 |
| Pletzer, 1891 | 12 | 7 | | | |
| Concetti, 1892 | 21 | 16 | | | |
| Heubner, 1892 | 113 | 77 | Fraenkel, 1895 | about 100 | in all but few. |
| Janson, 1893 | 83 | 63 | | | |
| Martin, 1892 | 200 | 137 | | | |
| Sakharoff, 1892 | 19 | 13 | | 2846 | 2344 |
| Tangl, 1892 | 18 | 18 | Percentage, | ..... | 82.4 |

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From this table it will be seen that in 2846 cases examined by European workers the Loeffler bacillus was met with 2344 times, or 82.4 per cent. The result is somewhat higher than that obtained by American investigators, who, it will be observed, largely through the efficient support of the Board of Health of the City of New York, examined nearly twice as many cases as given in the preceding table.

| | No. of cases examined. | No. of times Loeffler bacillus found. |
|---|---|---|
| Park, 1892 | 140 | 54 |
| Park, 1893 | 104 | 73 |
| Park and Beebe, 1894 | 4795 | 3255 |
| Morse, 1894 | 301 | 217 |
| | 5340 | 3599 |
| Percentage | ..... | 67.5 |

If we now combine the results obtained by American and European workers, we shall have 8186 cases, in which the Loeffler bacillus was found 5943 times, or in 72.6 per cent. of the cases.

These two tables contain the results obtained by a large number of investigators, in different laboratories and in different countries, employing at times methods more or less different. In many instances, the cases examined are described as suspicious or very suspicious. The degree of suspicion, as Welch has pointed out, is a relative one, depending on the physician, for when one physician considers a case to be highly suspicious, another may regard it as very doubtful. Accurate, positive clinical diagnosis of diphtheria in many of the foregoing cases is lacking, and the low percentage that these statistics furnish may in part at least be explained by this dilution with suspicious cases. For purposes of diagnosis, of course, the examination of suspicious cases is extremely valuable, but in statistics intended to show the frequency of the Loeffler bacillus in diphtheria they can have but one effect, that of lowering the percentage. This is true in the two tables already given and in the third table, which serves as an excellent comparison with the work of the American bacteriologists, giving the results obtained by the French investigators of the Pasteur Institute of Paris.

These results, it will be observed, are obtained by men working in the same laboratory, employing the same methods of research, and studying cases in one and the same hospital. These figures are already included in the first table. It will be seen from this table that the Loeffler bacillus was found in 73 per cent., which coincides closely with the percentage-frequency in all cases examined. Bearing in mind that these French bacteriologists are all skilled workers, it will be evident that this percentage is low because of errors in diagnosis by the internes of the hospital.

| | No. of cases examined. | No. of times Loeffler bacillus found. |
|---|---|---|
| Roux and Yersin, 1888 | 15 | 15 |
| Roux and Yersin, 1890 | 80 | 61 |
| Martin, 1892 | 200 | 137 |
| Sakharoff, 1892 | 19 | 13 |
| Chaillou and Martin, 1894 | 198 | 155 |
| Roux, Chaillou, and Martin, 1894 | 448 | 320 |
| | 960 | 701 |
| Percentage | ..... | 73 |

The available statistics then show that 73 per cent. of all clinical and suspicious cases of diphtheria contain the Loeffler bacillus. That this percentage will be higher when greater care is taken in diagnosis, excluding suspicious or doubtful cases, is evident. Furthermore, there are other conditions that bear upon the detection of a given micro-organism in disease, and all of these factors tend to lower the percentage. Thus, in the first place, the accuracy and skill of the individual in detecting the Loeffler bacillus are to be considered. The more experience one has in this kind of work, the more easily and frequently will the bacillus be found. Again, much will depend on the method of staining and on the method of cultivation. Certain stains are preferable to others, and the same is true of the medium on which the germ grows. Again, failure of detection may result from conditions over which the bacteriologist has no control. Thus, the material which is removed from the throat may not be from that portion where the Loeffler bacillus is present. Mere touching or scraping of the surface of the membrane does not necessarily carry with it the bacillus, which may, however, be present in the membrane. Again, the Loeffler bacillus may be present, but outgrown by the large number of foreign germs that may be present. In such cases the detection of the germ becomes a mere accident. Further, the bacillus may be inhibited or even prevented in its growth on culture-media by a previous application of antiseptics to the throat. That such cases may and do occur has been shown recently by Plaut.

There is reason, therefore, to believe that the percentage of cases of diphtheria in which the Loeffler bacillus exists is greater than that given in the preceding statistics. With proper care in diagnosis and in the removal of portions of membrane from the throat, supplemented by skilled investigators using reliable, well-tried methods, the percentage of cases in which the Loeffler bacillus is found may rise to a marked extent, as seen from the following table.

| | No. of cases examined. | No. of times Loeffler bacillus found. |
|---|---|---|
| Phillips (Baginsky) | 333 | 332 |
| Bernheim | 12 | 11 |
| Hilbert | 11 | 11 |
| Katz | 128 | 128 |
| Kossel | 117 | 117 |
| Loeffler and Strübing | 100 | 75 |
| Ritter | 225 | 225 |
| Bergmann | 46 | 46 |
| Fraenkel | about 100 | in all but few |
| | 972 | 945 |
| Percentage | ..... | 97.2 |

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These figures are already included in the first table. They were all obtained during the past year (1894) by German workers. Plaut's results are omitted because most of his cases were diagnosticated as "suspicious" or "very suspicious."

In connection with the presence of the Loeffler bacillus in diphtheria it should be emphasized, contrary to Hansemann, that there are cases in which the bacillus is present in perfectly pure culture, unaccompanied by any other germ. This is especially true if the examination be made at an early stage, as has been demonstrated by Martin, by Chaillou and Martin, by Fraenkel, and by others. Subsequently, as the disease progresses, other bacteria, especially cocci, make their appearance, and may not only outnumber but even suppress the Loeffler bacillus.

These bacteriologic studies with reference to the frequency of the Loeffler bacillus in diphtheria demonstrate clearly that this bacillus is present in more than the 75 percentage of all cases of real clinical diphtheria, as stated by Loeffler and conceded even by Hansemann. There remain, however, still a sufficiently large percentage of clinical diphtherias from which the Loeffler bacillus is unquestionably absent. In these cases, which, in many respects, are undistinguishable clinically from those in which the Loeffler bacillus is present, other micro-organisms are found. These forms of diphtheria may be due to several other micro-organisms, as has been shown by Roux, Chaillou, and Martin in their researches. They cannot be said to be proved to be causes of such diphtherias, but, nevertheless, there is much reason to believe that such is the case.

The French bacteriologists divide anginas into two groups: First, diphtheric anginas, those in which the Loeffler bacillus is present; and, second, non-diphtheric anginas, those in which it is absent and which, as stated, are undoubtedly due to other micro-organisms, above all to cocci. Thus in 112 anginas examined by Martin, 69 were found to be diphtheric and 43 non-diphtheric. The most common organism found in the latter group in 25 cases was a coccus. The next most common organism was the streptococcus, found in 8 cases, and in a few others the staphylococcus albus, aureus, and other cocci predominated.

In a second series by Chaillou and Martin, 99 anginas were examined, and 70 were found to be diphtheric and 29 non-diphtheric. Of the latter, 11 had the small coccus of Brisou, 11 had streptococci, and 4 had staphylococci. In the 448 cases examined last year by Roux, Chaillou, and Martin, 128 were found to be non-diphtheric. The study of croup by these same observers has likewise demonstrated that all croups are not diphtheric. They may likewise be divided into diphtheric and non-diphtheric croups. The latter, as in the case of the anginas, may be due to the Brisou coccus, the streptococcus, the staphylococcus, and other organisms. As seen from the subjoined table, the number of non-diphtheric croups is much less—nearly one-half—than the non-diphtheric anginas:

| | No. of cases. | Diphtheric | Non-diphtheric. |
|---|---|---|---|
| *Anginas:* | | | |
| Martin | 112 | 69 | 43 |
| Chaillou and Martin | 99 | 70 | 29 |
| | 211 | 139 | 72 |
| Percentage | .... | ..... | 34.1 |
| *Croups:* | | | |
| Martin | 88 | 68 | 20 |
| Chaillou and Martin | 99 | 85 | 14 |
| | 187 | 153 | 34 |
| Percentage | ... | ... | 18.2 |

The bacteriologic examinations show clearly, therefore, that diphtheria, as it is commonly understood, may be due to several causes—in other words, that we have a group of diseases that clinically often cannot be distinguished, but that, nevertheless, are etiologically different. It has been proposed to designate those cases in which the Loeffler bacillus is present as true diphtheria, or bacillar diphtheria, or diphtheria, for short; while those cases in which it is not present are spoken of as false diphtheria or pseudo-diphtheria, coccus-diphtheria, or diphtheroid.

Inasmuch as those cases in which the Loeffler bacillus is present are most numerous and most fatal, this form of diphtheria above all requires our attention. What evidence do we possess, then, that the Loeffler bacillus is actually the cause of those cases of diphtheria in which it occurs?

In order to prove this relationship it is necessary to obtain the bacillus in perfectly pure culture, free from all other micro-organisms. This can readily be accomplished, thus satisfying the second rule of Koch. The pure cultures thus obtained, when inoculated into susceptible animals, must now produce the same disease, with all its symptoms and pathologic changes, and in the animal thus artificially infected the germ is to be found distributed the same as in the natural case. This severe requirement is rarely complied with, for the reason that the animals which are used for experimentation, while susceptible to the action of the germ, can scarcely be expected to reproduce all the details of the disease as it exists in man. Thus the bacillus of glanders, which has been shown to be the cause of glanders in the horse, producing in that animal typical glanders, will, if inoculated into a field-mouse, produce death, but without the slightest resemblance to the disease in the horse. In other animals, as the guinea-pig, the bacillus does produce effects strikingly like those of glanders. Other instances might be cited to show that when experimenting with bacteria on animals other than those in which the disease naturally occurs, variations are met with and must be expected. What, then, is

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the effect of the Loeffler bacillus when inoculated into susceptible animals?

Fortunately, the results obtained by such inoculations are so striking and bear so great a resemblance to the natural disease in man as to leave no doubt in the minds of those who are at all familiar with the work that has been done in this direction. The production of experimental diphtheria in animals by Loeffler, and above all by Roux and Yersin, is in itself sufficient to show that the Loeffler bacillus is the cause of diphtheria. Guinea-pigs, pigeons, and rabbits are most susceptible to the Loeffler bacillus. Subcutaneous injections of a virulent culture into these animals almost invariably produce death in from twenty-four to forty-eight hours. A more or less extended gelatinous edema forms at the point of inoculation; a grayish pseudomembrane forms and the glands are enlarged. Serous effusions in the pleura are common in the guinea-pig, but very rare in rabbits. On the other hand, the liver in guinea-pigs is apparently unaffected, whereas in the rabbit fatty degeneration takes place. The inoculations on the mucous surfaces are especially characteristic. In order to succeed, the mucous membrane must first be slightly injured; otherwise infection does not result. Inoculations in the pharynx, trachea, conjunctiva, and vulva of animals are followed by the formation of false membranes, general intoxication, and death. In tracheal inoculations the false membranes may spread, as Fraenkel points out, covering the entire walls of the air-passages even as far as the large bronchi. The tissues are edematous and the glands swollen. A more striking resemblance to the natural disease can hardly be expected in animals that are not naturally susceptible to the disease.

The post-diphtheric paralyses observed in man have also been reproduced in animals by Roux and Yersin, Brieger and Fraenkel, and others. These paralyses are especially well marked in pigeons, rabbits, and dogs that have been inoculated with a quantity of the germ insufficient to kill in a short time. In from six days to two or three weeks from the inoculation typical paralyses develop and the animal either recovers or eventually dies. The production of false membranes on mucous surfaces and subsequent paralyses in animals complete the resemblance to the natural disease to such an extent as to establish the specific relation of the Loeffler bacillus to diphtheria.

Not only can pure cultures of the bacillus cause the paralyses in animals, but the chemic products of the bacillus can accomplish the same result. The researches of Roux and Yersin on the poison produced by the Loeffler bacillus mark a new era in the study of diphtheria. The filtered, germ-free cultures of the Loeffler bacillus, when injected into rabbits in doses not sufficient to kill in a short time, produce typical paralyses. That similar poisons are elaborated in the body of diphtheria-patients has been demonstrated by these investigators and by others. Thus, the spleen and urine of a child dead of diphtheria were shown to contain the same or similar poisons that, when injected into a rabbit, were followed by prolonged paralysis and death.

The effect of pure cultures of the Loeffler bacillus and of its chemic products on animals may be said to establish its relation to diphtheria. There are, however, two other facts that still further emphasize this relation. In the first place, the high mortality of those cases of diphtheria in which the Loeffler bacillus is present is in striking contrast with the mortality of those cases in which it is absent. This is no accident, much less a myth, as Hansemann would believe.

In the 80 cases studied by Roux and Yersin in 1890, the Loeffler bacillus was present in 61 cases and absent from 19. All of these 19 recovered, whereas of the 61 cases in which the bacillus was present 30 died. Again, of the 200 cases examined by Martin in 1892, the Loeffler bacillus was found in 137 cases and was absent from 63 cases. Of 55 non-diphtheric anginas and croup 7 died; 4 of these, however, became infected with the Loeffler bacillus in the hospital, subsequent to tracheotomy, and 1 died of broncho-pneumonia. Of 137 diphtheric anginas and croups 72 died. The study of the 198 cases presented by Chaillou and Martin in 1894 develops the same remarkable difference in the mortality of the two groups. Thus, in the 198 cases of angina and croup mentioned, the Loeffler bacillus was found 155 times and was absent from 43 cases. Of the 43 non-diphtheric cases 4 died, 3 of these as a result of subsequent infection in the hospital with the Loeffler bacillus. Of the 155 cases in which the Loeffler bacillus was present 83 died. Again, of the 448 cases reported on by Roux and his coworkers last year, treated with serum, 109 died; 320 of these cases had the Loeffler bacillus, and gave a mortality of 98; 128 did not have the Loeffler bacillus, and gave a mortality of 11.

These figures are brought together in the following table, and furnish an interesting subject for study:

| | No. of cases with Loeffler bacillus. | Deaths. | Per cent. | No. of cases without Loeffler bacillus. | Deaths. | Per cent. |
|---|---|---|---|---|---|---|
| Roux and Yersin | 61 | 30 | 49.2 | 19 | 0 | 0 |
| Martin | 137 | 72 | 52.6 | 55 | 7 | 12.7 |
| Chaillou and Martin | 155 | 83 | 53.5 | 43 | 4 | 9.3 |
| Average | 353 | 185 | 52.4 | 117 | 11 | 9.4 |
| *Antitoxic serum;* Roux, Chaillou, and Martin | 300 | 78 | 26.0 | 128 | 11 | 8.6 |

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The bacteriologic examination of clinical diphtheria, therefore, shows clearly that the mortality in those cases in which the Loeffler bacillus is present is about 50 per cent. On the other hand, those forms that are clinically undistinguishable from the preceding, but do not contain the Loeffler bacillus, possess a mortality of 10 per cent., which, however, includes those that died of subsequent infection with the Loeffler bacillus. Deducting these, assuming that all would recover, the mortality would sink to less than 4 per cent. Certainly no more remarkable evidence of the etiologic relation of the Loeffler bacillus to diphtheria can be presented than that shown from the study of the relative mortalities.

As a final proof of the relation of the Loeffler bacillus to diphtheria, we will mention in a general way the results obtained from the use of the antitoxic serum. First of all, it is desirable to emphasize the experimental fact that the serum of animals rendered artificially immune to the diphtheria-bacillus or its products will protect absolutely animals against many times the fatal dose of the diphtheria bacillus or of its poison. This fact is as well established by direct experimentation on animals as the chemic fact that sodium hydroxid and hydrochloric acid neutralize each other. Secondly, it will be remembered that in diphtherias in which the Loeffler bacillus is present, poisons the same as those formed in pure cultures are produced and can be found in the organs, as has been done by Roux and Yersin and others. The antitoxic serum that protects animals against infection with the Loeffler bacillus must likewise protect the person afflicted with diphtheria due to the Loeffler bacillus. That it actually does protect is abundantly demonstrated by treatment of diphtheria during the past year.

To emphasize the statement already made, it will be sufficient to present one or two instances. Of the 300 cases treated with the antitoxic serum and reported on by Roux, at Budapest, last September, only 78 died, giving a mortality of 26 per cent. These results were obtained in the same hospital in which Chaillou and Martin established the fact that in diphtheria in which the Loeffler bacillus is present the mortality is above 50 per cent.

Furthermore, showing the specific action of the antitoxic serum on the Loeffler bacillus and its products, it will be seen, from results already cited, that in 128 non-diphtheric cases treated the mortality was 8.6 per cent. against 9.4 per cent. in non-treated cases. The serum is, therefore, without any effect in cases in which the Loeffler bacillus is not present, and in those cases in which it was present the mortality was reduced by one-half, that is, 25 per cent. were saved. Since then the mortality-record has been lowered considerably. Thus, in 128 cases of diphtheria containing the Loeffler bacillus, treated by Katz, only 17 died, giving a mortality of 13.2 per cent.; 117 cases treated by Kossel gave 13 deaths, a mortality of 11.1 per cent.

Because the protection against the Loeffler bacillus is absolute in animals, it must not be expected that similar results will be obtained in man. A certain mortality will necessarily exist, owing to conditions over which the physician can have no control. In experiments on animals, three factors are involved: the animal body, the Loeffler bacillus or its poison, and the antitoxic serum. It is well known from experiments that an animal cannot be saved when the duration of the disease or of the intoxication has been too long. Irreparable injury has already been done. The same results must, therefore, be expected in the human subject when the disease has progressed beyond a certain point.

Furthermore, in the human subject, in addition to the three factors mentioned, another one is to be considered, and that is the association of the Loeffler bacillus with other micro-organisms. It is to-day a well established fact in bacteriology that a given pathogenic germ may be favored or retarded in its action by the presence of other organisms. In diphtheria, both of these conditions are not infrequently met. Roux and Yersin have shown that the virulence of the Loeffler bacillus, with respect to animals, is increased by associating it with the streptococcus of erysipelas. The statistics furnished by Chaillou and Martin are especially valuable in this regard. In their researches, as already stated, the cases of clinical diphtheria were divided, on the strength of the bacteriologic examination, into diphtheric and non-diphtheric. The diphtheric anginas and croups were subdivided into (1) pure diphtheric forms, in which the Loeffler bacillus was present in a pure or almost pure condition; (2) diphtheric forms with microbic associations. The latter associations may vary. At one time there is present a small diplococcus, the coccus of Brisou; at another time a streptococcus; at another time a staphylococcus. In a few words, the same germs that are found in non-diphtheric forms may be associated with the Loeffler bacillus in real diphtherias.

The following table, compiled from the results obtained by Martin in 1892, and by Chaillou and Martin in 1894, demonstrates clearly the effect of microbic associations. All these cases contained the Loeffler bacillus. Those designated as "pure diphtheric" contained the Loeffler bacillus in almost pure culture, the number of foreign germs being very small, if at all present. In those cases designated as coccus-angina or croup, the predominating foreign germ, beside the Loeffler bacillus, was a small diplococcus. It will be observed that the percentage-mortality in this group is much less than in the group of pure diphtheric affections. In other words, the presence of a large number of cocci of this

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kind tends to counteract the effect of the Loeffler bacillus. In the third group are included those cases in which, in addition to the Loeffler bacillus, streptococci or staphylococci predominate. Here it will be noticed that the percentage-mortality is much greater than in the pure diphtheric forms. The streptococci and staphylococci, therefore, either increase the pathogenic powers of the Loeffler bacillus directly, or by their own products give rise to additional intoxication, and, therefore, increased mortality:

| | No. of cases. | No. of deaths. | Per ct. | Per ct. both anginas and croups. |
|---|---|---|---|---|
| *Anginas:* | | | | |
| Pure diphtheric | 96 | 38 | 40 | ..... |
| Diphtheric with coccus | 14 | 1 | 7 | ..... |
| Diphtheric with streptococci or staphylococci | 29 | 26 | 90 | ..... |
| *Croups:* | | | | |
| Pure diphtheric | 67 | 44 | 66 | 50.3 |
| Diphtheric with coccus | 19 | 5 | 26 | 18.2 |
| Diphtheric with streptococci or staphylococci | 25 | 19 | 76 | 83.3 |

There are a number of other interesting points regarding the Loeffler bacillus, such as the presence of this germ in the throats of healthy children; its occurrence in fibrinous rhinitis; in wound-diphtherias; its persistence in the throat after recovery from diphtheria; its relation to the non-virulent pseudo-diphtheria-bacillus, etc. These facts, however, have but little significance, so far as the proof of the relation of the Loeffler bacillus to diphtheria is concerned, and I shall, therefore, avoid their discussion.

Summarizing briefly the leading points brought out in this paper, it will be seen, *first*, that the Loeffler bacillus is present in much more than 73 per cent. of real clinical diphtherias; *second*, that pure cultures introduced into animals reproduce false membranes, paralyses, and other ill-effects observed in diphtheria; *third*, that the chemic products of the bacillus produce paralyses, diarrhea, intoxication, and death, completing the resemblance to the natural disease; *fourth*, that the mortality is vastly greater in those cases in which the Loeffler bacillus is present than in those from which it is absent; *fifth*, that the antitoxic serum, which possesses a specific action toward the Loeffler bacillus and its poison, reduces the mortality in those cases in which the Loeffler bacillus is present and is without effect in those from which it is absent.

It is this overwhelming evidence that fully justifies us in stating that whenever the Loeffler bacillus is found in a disease it is diphtheria. It was with genuine pleasure that Loeffler could make the definite announcement at Budapest last year, ten years after his pioneer work of 1884, that "The cause of diphtheria is the diphtheria-bacillus."

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## A NOTE ON THE TREATMENT OF CATARRHAL DEAFNESS BY PNEUMO-MASSAGE AND PHONO-MASSAGE.

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DEAFNESS due to catarrhal inflammation comes on so insidiously that the impairment of hearing is not noticed in most cases until the conduction of sound is greatly impaired in one ear, if not in both ears. A desire to secure relief without resort to surgery calls for many efforts to devise some form of mechanism by means of which the delicate membranes and bony arches may be restored to their normal condition of elasticity and mobility. This can be best accomplished by a process of exercise or massage, associated with constitutional and local medication.

The Edison phonograph, the vibrometer, and the vibrophone have all been before the medical profession for some time, with strong claims urged for each of them. These instruments fuifil the indications in part by producing a series of aërial impulses which are conveyed to the ear by means of tubes attached to an artificial drum in the instrument, and terminating in suitable bulbs that closely fit the external meatus. The diaphragm of the artificial drum being put into vibration causes a similar movement of the membrana tympani and associated ossicles in the middle ear, thus breaking up some of the adhesions due to deposits of plastic material and inspissated mucus. This movement generally relaxes, and if sufficiently long continued permanently lessens the tension caused by such adhesions, and at the same time frees the drum of the inspissated mucus which mechanically interferes with sound-conduction. This continued action upon the drum, moreover, tends to stimulate the normal secretion of mucus, and thus slowly softens the inspissated masses, which may be dislodged and expelled into the upper pharynx. At the same time it admits of freer ventilation of the middle ear, and consequent equalization of air-pressure inside and outside of the drum, thereby removing one source of tinnitus.

The vibrophone does not possess sufficient force to produce more than very mild impacts, and is, therefore, much inferior to the vibrometer or the phonograph. The vibrometer has one advantage over other instruments in that the vibrations produced by one or the other of the banjo-strings possess a pitch and tone that are agreeable to the patient and sufficiently mild to admit of long sittings. The best instrument for the purpose, however, is the phonograph, which, with the proper diaphragm attached, possesses the maximum of force with the minimum of sound. Such a diaphragm, with the attachment for the stylus, was devised some four years since, and although very delicate in construction, makes a

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sufficiently strong attachment for use on the grooved wax-cylinders ordinarily used on the phonograph.[1]

With this diaphragm, and the cylinders grooved as the operator may desire, very forcible impacts with greatly reduced noise can be produced, and can be easily regulated to suit the conditions in each case. This is accomplished with comfort and safety for the patient owing to the movement of the diaphragm which causes the drum to retract, thereby producing, or tending to produce, a partial vacuum by first drawing out the membrana tympani and relieving the internal ear from pressure, and then alternating the pressure as the diaphragm returns to its original position, thus rapidly and continuously putting in motion the membrana tympani and the ossicles, without increasing the pressure on the oval window, and without possible harm to the internal ear.

The phonograph has an additional advantage in that the confusion sometimes complained of when long-continued applications of massage have been made is nicely relieved by substituting a musical cylinder, which is both entertaining and soothing, especially stringed-instrument records, such as of the banjo. The vocal cylinders can be used to determine the quality of sound-conduction as well as the hearing-value, and the orchestral musical cylinders in determining the pitch and kind of instruments best heard and recognized. We may also note the degree of improvement as shown by the additional words and tones recognized and repeated from time to time. The phonograph is, therefore, decidedly the best and neatest instrument for producing what is called pneumo-massage and phono-massage, with the single exception of certain gentle musical vibrations which can be best obtained from the banjo-strings of the vibrometer.

The cases should first be carefully examined, to determine as nearly as possible the seat of pathologic change, the character of deafness as regards the quality of sound, and the sensitiveness both to pain and sounds caused by the instrument in producing vibrations. The instrument is then started at a low speed, which is increased until discomfort or a tendency to vertigo is felt, at which point the maximum limit is reached. The speed is then reduced to a velocity at which comfort is expressed, and retained at that point for several sittings, but may be gradually increased at subsequent sittings. The sittings should be regulated in length of time by the sensations of the patient, so as to avoid mental and physical discomfort (usually from ten to twenty-five minutes), and end by an agreeable musical cylinder, thus diverting attention to pleasant sensations, and at the same time securing mild auditory exercise.

[1] Messrs. Hawthorne & Sheble, the Edison phonograph agents of Philadelphia, 604 and 606 Chestnut Street, have been preparing these cylinders and diaphragms for this purpose after the original model made by Mr. Leeds.

The results of this method, in conjunction with proper alteratives and tonics, and local treatment consisting of applications of tannic acid and glycerol, or weak silver-solutions to the naso-pharynx, antipyrin, and compound tincture of benzoin to the nose (especially over the lower turbinated bone), followed by camphor and menthol in liquid vaselin, and when stenosis from engorgement exists the galvano-cautery applied, will result in marked improvement in many cases of deafness in which the loss of delicacy in motion of the conducting bony chain is caused by pathologic changes not destructive to the continuity of soft or bony tissue. A thorough trial of this method in a large series of cases covering a period of twelve months has convinced me that an absolute cure or return of normal hearing-power in a large proportion of these cases may not be possible, but a considerable number will show the most marked improvement, while in the remaining cases an arrest of progress may at least be expected. Associated tinnitus is likewise relieved or cured in many cases, but a few will yield in neither deafness nor tinnitus in the period mentioned.

The disadvantages of this method are the length of time required and the number of applications necessary to accomplish the desired result; but, notwithstanding these faults, it promises at present the greatest degree of success with the least amount of injurious effects of any method yet proposed, and is altogether our surest method of relief when used in connection with the proper inflation of the middle ear and the necessary local and constitutional treatment.

## ORIGINAL ADDRESS.

### *ADDRESS IN MENTAL DISORDERS.*[1]

BY F. X. DERCUM, M.D.,

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FOR many years the public mind in dealing with the problem of insanity has approached it almost exclusively from a practical and utilitarian point of view. The reasons are obvious. The position that insanity and all that pertains to it has occupied in the past has been most peculiar. For ages the insane had been treated as a class that required not only the isolation of the leper, but also the punitive treatment of the evil-doer. In the lay mind insanity involuntarily excited abhorrence and disgust, and was closely associated with ideas of blame and punishment. Indeed, in this day it is by most people regarded as a disgrace if one of their relatives become insane, and often the fact is as much as possible kept concealed. By some unaccountable action of the human mind this peculiarity attaches to no other class of diseases;

[1] Read before the Medical Society of the State of Pennsylvania, at Chambersburg, May, 1895.

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at least not in the same degree. It is not strange in view of these facts that the first attempts at the management of the insane in bulk consisted mainly in their housing, and made no other provision for their welfare. Even in these days, when the insane are placed under the care of physicians, the latter are assigned rather the duties of housekeepers, stewards, and executive officers than those of medical attendants. When we consider the attitude of the public mind that obtains more or less to this day, and when we consider the inherent difficulties of the subject, we can readily understand why the science of insanity, especially its pathology, has remained a veritable Africa to medical men.

We must, however, frankly admit that in the practical care of the insane an enormous advance has been made —an advance that has continued unceasingly ever since the days of Pinel, of Tuke, and of Rush. We, too, often look with eyes of reproach upon the science and forget the great practical good that has been accomplished in other directions. Surely the pathway through the jungle had first to be cleared, a semblance of order had first to be established, a knowledge of clinical forms had first to be acquired, before the explorers of this dark continent could devote their time to purely scientific study. In this struggle, in this gigantic task, the alienist is still engaged.

We cannot be surprised that more has not been accomplished when we reflect that the asylum of to-day is only the refined madhouse of former times, and that in it but few opportunities for scientific research are to be found; and, further, to repeat, that the physicians are burdened with executive duties such as should not come within the province of medical men, and of which medicine as a science can take no cognizance.

For this condition of affairs medical men are not to be held strictly accountable. The insane-hospital is for the most part a public institution, and its organization, the plan upon which it is conducted, the financial system upon which it is based, is a reflection of public opinion. The practical politician fails to see the advantages resulting from purely abstract scientific investigation, and yet it is very probable that an increased knowledge of the pathology of insanity will diminish not only the cost of maintaining the insane, but also the actual number to be maintained.

Another and still more serious obstacle has confronted the student of psychiatry, indeed the greatest obstacle of all, and that is the inherent difficulty of the subject. The alienist has been in the unfortunate position of being able to observe surface-indications only, while of the actual underlying principles he could of necessity have no knowledge, inasmuch as both the structure and the function of the gray cortex, except in their grossest relations, were unknown. As a consequence, metaphysical reasoning and vague speculation for a long time took the place of fact and scientific observation.

At last the difficulty promises to be removed; the dawn of a better day is at hand; the marvellous methods of research of Golgi and of Ramon y Cajal, in the hands of such men as Lloyd Andriezen,[1] are revealing the actual, the detailed structure of the human cortex. The beginning has been made of associating structure with mind-action, and the recognition of the fact that mind-action cannot be separated from ordinary brain-action must henceforth be accepted as an indisputable fact. Doubt, prejudice, preconceived notions of all kinds must yield to scientific truth.

Andriezen has analyzed and separated the various elements of which the gray cortex is composed, and the relations of the structures to each other are such that their function seems evident. The incoming, the afferent, fibers, which bring information to this vast expanse of ganglionic matter, the gray cortex, terminate not in ganglion-cells, but in the uppermost layer, the molecular layer, of the cortex. Here their minute divisions come in contact with the minute branches and delicate tufts of the various cortical cells. Significant is it, too, that the insulating material that encircles this afferent fiber is lost when the fiber enters the cortex, so that there is no interference with the proper diffusion, either by contact or induction, of the current which it conveys to surrounding structures. The current, whatever its mode of motion may be, is transferred from cell-process to cell-body and thence perhaps to afferent fibers, or more frequently to countless numbers of other cells—cells whose business it is to associate, to combine, to separate, and to store up impressions.

The limits of the time at my disposal will not permit me to enter into a more detailed statement of these discoveries, but their significance is redoubled when we learn that Andriezen obtained the most interesting results when he directed his attention to one of the simpler forms of insanity, namely, one in which the cause is definitely known, and in which the symptoms are well established and relatively simple in character: I refer to alcoholic insanity. Andriezen found, first of all, that the neurons showed changes in the cell-bodies and in the nuclei. There were swelling and indistinct staining of the intercellular chromatin-rods. There were also coarseness and increased staining of the nucleus, changes that indicate that in alcoholic insanity the cell-protoplasm and cell-nuclei are the seat of serious nutritive disturbances. Especially, however, did Andriezen note alteration and destruction of the fine naked collaterals and nerve-terminals of the molecular layers of the cortex—the very layer in which afferent impressions are first communicated to the nerve-cells of the cortex. There were also swelling and softening of the very minute protoplasmic granules attached to the special processes in the superficial quarter of the cortex. These changes, "dynamical changes," as Andriezen calls them, doubtless explain the diminished sensitiveness and alertness of the alcoholic to incoming sensory impressions, and similarly a diminution of the spread of the excitation from one area to associated areas. To these changes and to the changes in the cell-body are also to be relegated the amnesia of the alcoholic state. We have here the first instance in the history of insanity in which it has been possible to correlate closely cause, structural change, and symptom. Surely a beginning has been made in this brilliant research that augurs well for the future.

It is to be hoped that these results will everywhere stimulate the foundation of laboratories in hospitals for the insane. To be sure, a few such laboratories already exist, but too often the pathologist meets with but scant support both from the Boards of Trustees and from the

[1] Brain, Winter Number, 1895; also 1894 Journal of Mental Science, p. 673, abstract.

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medical officers of the institutions. Everyone should realize that there is no longer an excuse for the ignorance that exists in reference to the changes in the cortex of the insane. The methods of Golgi and of Ramon y Cajal, as Andriezen has shown, are capable of revealing the most astounding secrets, and one of the most urgent demands upon the time of the alienist should be histologic and pathologic research.

The story, however, does not end here. A second field of work is beginning to claim attention—a field more wide, more vast even than that which has been opened up by Andriezen. After all, whilst the detailed study of the sane or insane cortex will enable us to correlate structure with function and change of structure with change of function, it cannot, save in special instances, as in the case of alcohol, where the cause is clear and self-evident—it cannot of itself reveal the underlying or initial causes that effect these changes. Even if it be possible to correlate the symptoms in the case of mania or of melancholia with dynamic changes in the cell and its processes, it cannot be expected that the agent which produces these changes can be brought to light by this method. After all, the changes that we see are but effects, and are in many instances purely terminal results.

The conviction is steadily growing in the medical mind that the actual agents which produce tissue-changes are chemic agents, toxic substances of one kind or another, no matter what their origin—in one instance absorbed or ingested from without, in another the poison elaborated by bacteria, and in another the poison of altered tissue-metabolism, of abnormal and deranged visceral function.

Unfortunately, we can to-day say little that is fixed and definite upon this subject, and yet enough is known to indicate that we have here vast fields of undiscovered truth. That toxic substances are formed in the blood, that toxic substances are excreted by the urine is well known. This is true both of substances formed by normal and abnormal tissue-metabolism. We need here only allude to the writings of Bouchard upon this subject to recall how the retention of well-known products may cause such symptoms as asphyxia, uremia, uricemia, cholemia, glycemia, etc. A number of French observers, among them Bouchard, Lépine, and Guerin, have isolated alkaloidal substances from normal urine, while Selmi and others have isolated basic substances from pathologic urine. Griffiths, for instance, has obtained ptomains from the urine of scarlet fever, diphtheria, pneumonia, whooping-cough, measles, glanders, and epilepsy. None of these substances exists in normal urine. Luff has isolated a ptomain from the urine of typhoid fever. Albu has discovered ptomains in various pathologic urines, whilst Ewald isolated ptomains from the urine in cases of carcinoma of the stomach, of uremia, and of Addison's disease. It is also known that the urine in melancholia has an increased toxicity, while in mania the toxicity of the urine is decreased while that of the blood is increased. Enough, therefore, is known to justify us in discussing the probable relation of these toxic substances to the nervous system.

That the nervous system is markedly influenced by the presence of toxic substances in the blood is, of course, well known. It remains only to outline a classification of these agents. To begin, certain toxic substances are normal constituents of the blood and urine, and only under certain circumstances are present in excess, when they assert their toxic action. Thus Mosso demonstrated the toxicity of the blood of fatigued animals, while Arbelous demonstrated the same fact not only as regards the blood, but also as regards the muscles of fatigued animals. Lepicque and Marette demonstrated in addition that fatigue increased the toxicity of the urine. It is probable that in these facts is to be sought a partial explanation of some of the phenomena of neurasthenia and of those graver forms of nervous exhaustion that eventuate in insanity. In other words, we have an intoxication of the nervous system in such cases from the mere accumulation of tissue-waste; or, to put it in scientific language, the products of excessive tissue-metabolism.

Closely allied to these substances are those that are present in the various diathetic insanities in which toxins are present, some of which may in smaller quantity be normal to the urine, while others are new and foreign. Thus in the insanity of gout we have doubtless to deal with uric acid, a substance normally present in the blood in small proportion, whilst in rheumatism we deal with a substance new and foreign. This is also true of the toxins of diabetic and of carcinomatous insanity. Regarding carcinoma, it may be stated that the toxicity of the urine is always in excess of the normal, proving thus the presence of some poisonous substance.

Next in order come the various toxic insanities due to disordered visceral action. Regarding these we have but little information. Enough is, however, known regarding the diseases of the kidneys and of the liver to indicate that the insanities associated with these affections are in all probability the result of autointoxication, the poisons being generated in consequence of the disordered action of the viscera. It is not at all improbable that disease of other viscera—probably of all of the viscera—is attended with the elaboration of substances that have a toxic action upon the nervous system, *i.e.*, autotoxins.

Next we should consider the introduction of toxic substances from without, and for the present we shall exclude all poisons ingested as such. From much that we know, we have reason to infer that under certain pathologic conditions poisons are formed in the stomach and intestines which act profoundly upon the nervous system. Massetti, who has especially studied this subject, comes to the following conclusions: First, that if there be a change in the process of gastric digestion by which, as a result of abnormal fermentation, noxious substances are produced, these when absorbed may in a predisposed individual cause disturbance of function of the nerve-centers. Secondly, disturbance of the gastric function secondary to disturbance of the nervous centers may in certain cases lead to the absorption of abnormal materials from the gastro-intestinal tube, which may aggravate a pre-existing mental malady and may retard recovery. Thirdly, the stomach, like the rest of the digestive tube, is, among other things, an organ for the elimination of a toxic principle pre-formed and circulating in the blood. Unfortunately, here, as elsewhere, our knowledge is as yet too indefinite to enable us to speak with precision, and yet the occurrence of intoxication from the intestinal contents is of itself not open to question.

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We have still to consider briefly the toxic conditions resulting from infection: for example, influenza, typhoid fever, the eruptive fevers, erysipelas, septicemia, etc. Here the action of the toxic agents resolves itself, as Regis points out, into two separate conditions, depending entirely on the period at which the symptoms of intoxication make their appearance. If these appear during the acute febrile state, they assume ordinarily the form of acute delirium; whilst when they occur during the post-febrile period they produce a mental condition in which confusion, stupidity, stupor, and psychic asthenia are the prominent symptoms. It is not improbable that the symptoms occurring both during the acute febrile period and during the post-febrile state are due to the toxins elaborated by the bacteria of the disease, and are in a sense comparable, the first to the stage of acute alcoholic intoxication, the second to the mental impairment and asthenia of the chronic alcoholic period.

It appears that the various intoxications of the nervous system resolve themselves into two great groups—*first*, the autointoxications, properly speaking, which embrace, first, the substances normal to the blood and secretions, but present in excess; secondly, those substances due to the general disturbance of tissue-change met with in diathetic conditions; and, thirdly, the poisons formed by the disturbed action of special viscera.

In the *second* group we have, first, those substances absorbed from the intestinal tract, some of which are produced, as we have seen, by disordered chemic action and morbid fermentation of its contents, and others normally excreted by the intestinal tract, but under abnormal conditions reabsorbed; secondly, we have the poisons that are the direct results or accompaniments of infection.

While we know comparatively little of the detailed chemistry of these poisons, we are justified in stating the following proposition, namely: that the most diverse agents may produce the same or at least similar clinical phenomena. For instance, the toxic action of alcohol resembles very closely the toxic action of the poison of an infection. The delirium of the febrile period of an infection may closely resemble alcoholic delirium. Again, the insanities coming on in the post-febrile or convalescent period, the so-called asthenic forms of insanity, in which weakness, stupor, and depression are the cardinal features, so closely resemble each other as to be practically indistinguishable. Nevertheless they may result from widely differing infections.

The determination of the toxicity of the urine, of the blood, or of other tissues and secretions implies of necessity experiment upon animals. If an alkaloidal substance be isolated from the urine, its toxicity can alone be demonstrated by experiment. The toxicity of the blood can only be proved by its injection into the veins or into the peritoneal cavity of some animal—a mouse or a guinea-pig. It is to be feared that attempts in this country to prosecute such lines of research may meet with opposition. "Public opinion," which too often is synonymous with public ignorance and public prejudice, may for a time prevent the establishment of experimental laboratories in hospitals for the insane. But perhaps at no very distant day, when it becomes clear that the pecuniary outlay demanded of the State for the care of its insane will eventually be diminished by the prosecution of just such researches, the opposition may be withdrawn. As a matter of fact, every asylum, every hospital for the insane should have attached to it not only a laboratory for the study of the microscopic changes in insanity—changes that by the improved methods now at hand, notably those of Golgi and Ramon y Cajal, promise to yield great results, but also for the determination of the various toxic substances, their origin, their chemistry, and their mode of action upon the nervous centers. As we have already stated, the microscope can at best reveal only the wreckage in the path of the storm, whilst the chemistry of the tissues and of the excretions and experiments upon living animals will enable us to determine the actual causes and the actual sequence of the changes.

That consideration of the pathology of insanity from the standpoint here taken has a practical bearing there can, I think, be no doubt. If it be true that certain of the psychoses are due to intoxication through the stomach, certainly one of the first indications is lavage and other local treatment of the stomach. Indeed, to my mind, it seems good therapeutics to practise lavage in the majority of cases of the depressive forms of insanity, for instance in melancholia and in the various stuporous forms of insanity, not because we believe at this day that these insanities are due to the direct absorption of substances formed by abnormal chemic changes in the stomach, but because it is exceedingly probable that toxic substances even normally excreted by the stomach may, in these conditions, be reabsorbed. Again, if it be true that the psychoses are so largely due to the action of toxins, certainly hydrotherapy, so grossly neglected, acquires a value altogether unexpected. Its application should embrace not only the stimulation of the skin by baths and douches, but also the ingestion of large quantities of diuretic waters. Finally, if the psychoses are due to the action of toxic substances, we shall be in a better position to treat these affections when the action of these toxic agents is known—we shall be in a better position to suggest the proper remedial agents.

## CLINICAL MEMORANDUM.

### *COMPOUND FRACTURE OF THE SKULL, WITH SEVERE LACERATION OF THE BRAIN, IN AN INFANT TWO MONTHS OLD, WITH RECOVERY.*

BY CLAUDIUS H. MASTIN, M.D., LL.D. UNIV. PENNA.,
OF MOBILE, ALA.

THE following interesting case of severe injury to the brain of an infant, less than two months of age, is not without interest, but is worthy of record in the archives of surgical literature. It shows the tolerance of very young children to severe wounds, even when such injuries implicate vital organs. Although familiar with the histories of very many severe injuries to the skull and the brain itself, I am not able to find among surgical records a single case in which so young a child has met with so severe an injury and made so rapid a recovery—if indeed there has been recovery after such an injury.

The following notes, carefully and correctly taken at the time of the injury, will suffice to lay the case before the profession.

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On Sunday, April 21, 1895, I was hastily summoned in consultation to see an infant boy, a child of Mr. E. H., the Imperial German Consul at this port. The child had been born February 26, 1895, and was consequently on the day of the accident just fifty-four days old—less than two months. The parents having gone to attend services at church, the nurse, with whom the child had been left, placed it in its little carriage and rolled it upon the front gallery, which is elevated from the ground eight feet, and reached by a flight of rather steep steps, eleven in number. She carelessly left the infant in charge of two little children upon the gallery and went to the rear of the house for some purpose; whilst she was absent, it is supposed the little ones, in play, pushed the carriage toward the landing of the steps, over which it toppled and fell to the bottom and out upon the walk. The child was thrown out at the time the carriage upset, and, in falling, the little steel rod which supports the sunshade struck the frontal bone just above the orbital ridge over the right eye, penetrating the skull and entering the brain to the distance of about three-quarters of an inch. (I *estimated* this depth from the stain of blood and brain remaining upon the rod.) Entering the skull with much force, it appeared to have torn itself outwardly as the child, which evidently had been impaled upon the rod, fell away from the carriage. The wound extended upward and outward on the right side of the frontal bone, from just above the orbital ridge, near to the sagittal suture, a distance of very near, if not entirely, two inches. The rod measured three-eighths of an inch in diameter, and at the point was rough and jagged, just such an instrument as would be calculated to inflict such an injury. There was considerable loss of blood, and at least a dessertspoonful of brain-substance was scattered upon the inside of the sunshade, upon which the child had fallen; besides, an equal amount had been smeared upon the face and some considerable quantity oozed from the wound. The wound was a horrid, lacerated gash, and from it was trickling a flow of dark-colored venous blood, to all appearances coming from the longitudinal sinus. There was no depression of the skull, but rather an eversion of the torn integuments, with a bulging outward of the edges of the fracture, as if they had been forcibly turned out by the rod of steel after penetrating the skull and then ripping up.

The shock was profound, and the child was almost insensible, deathly pale, and pulseless. To all appearances the case was hopeless and surgical efforts were seemingly of little avail—in fact, the child was apparently in *articulo mortis*. Unwilling to abandon the case to a certain death, I concluded to wipe away the extruding brain and close the rent in the forehead, more with the intent of making it a less repulsive corpse than with any hope of effecting a cure! To this end I closed the wound with interrupted silk sutures carried through the scalp and including the pericranium, down upon the skull itself. I was not able, except by pulling aside the edges of the skull, to catch up the dura, else I should have also closed that membrane before closing the integuments. At the point of entrance of the rod, where the integuments were perforated, I left it open for drainage, if perchance the wound should unite. The skull was so soft, very little firmer than a dense sheet of cartilage, that it was an easy matter to bring the edges in close apposition and retain them there by a compress of iodoform-gauze, with a bandage carefully adjusted. As stated, the shock was so profound that the child did not cry or give evidence of the least pain during the introduction of the sutures or in the adjusting of the dressing, being as quiet as if under the influence of an anesthetic. This was about one o'clock in the afternoon, and I had little thought that the child would live through the night. When I again called late in the evening I was astonished to find that reaction was almost complete, with an absence of fever, and that the child had rested quietly and nursed from its mother as it had usually done.

During the night the child suffered a good deal from colic and the temperature had run up to 102°. The infant was restless and irritable. I ordered quiet, and phenacetin, gr. ss, every two-and-a-half or three hours until the temperature came down.

On April 23d the temperature had fallen during the night to 99°, the babe had rested quietly, its functions were normal, the bandages were saturated with cerebro-spinal fluid. I readjusted the bandages and found that the flow of fluid was rather profuse, as it ran out and trickled down the child's face. I instructed the mother to absorb it as well as she could, but to avoid any pressure upon the wound.

On April 24th the morning temperature was 98.4°. There was no appreciable change in condition of wound or child. The noon temperature was 99° and at 3 o'clock P.M. it had increased to 100°, but at 7 P.M. had fallen under the administration of phenacetin to 98.4°.

In the morning of April 25th the child was evidently more comfortable, and with the exception of a slight attack of colic during the night had got along very well. At noon the temperature was 99°, and at 6 P.M. it had risen two-fifths of a degree. The wound appeared healed, save at the drainage-point, from which a continued flow of cerebro spinal fluid issued. The child's functions were normal, and it appeared as well as if no accident had happened to it.

On April 26th the child was evidently doing well, and nursed regularly and slept quietly; the temperature remained at 98.4°. The wound appeared soundly healed, save at a small point in the lower angle, from which there continued a rather profuse flow of cerebro-spinal fluid. I concluded to try to arrest this by pressure over the spot, and, having dusted it thickly with boric acid and put on a little compress of gauze, I confined it by a narrow strip of rubber plaster and a bandage. This proved of no avail, for the fluid continued to flow and saturate the dressings, and, as the bandage and plaster seemed to give the little patient discomfort, I concluded to remove all dressing, save a simple fold of gauze to absorb the fluid, and to leave the treatment to the unaided efforts of Nature. The sutures had been removed on the sixth day, and as the wound was entirely closed, save at the minute opening from which the fluid issued, there were no indications to be fulfilled other than quiet, good nursing, and waiting for developments. The next three days, the 27th, the 28th, and the 29th, were passed without any change, with the exception of the night of the 29th, at which time the fluid ceased to flow, and the little opening on the morning of the 30th was closed as tightly as the entire line of wound.

I visited the child again on May 1st and 2d, and finding it perfectly well, with only a narrow line marking

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the place where the rent had opened the skull, I concluded to discharge the case from my list.

A few days ago I called to see the little patient and met the nurse with it in the yard. The mother informed me that it had never had a single bad symptom, that all its functions were normal, that it nursed and slept as all her children had done. When questioned as to whether the child was as bright as children usually are at his age, now going into its fourth month, she replied: "Doctor, I think my little boy is the brightest child I have had; he laughs, and plays, and cooes, and is the dearest little fellow in the world."

Such is the outline of this case, which I record as interesting on account of the gravity of the injury, and being followed by such speedy and satisfactory an issue. I might mention the profuse discharge of fluid as exceeding my expectation, although it was not possible to measure the quantity lost, as it was absorbed by the dressings as it issued from the wound; judging from the saturated condition of the gauze, bandages, and little cap which was put on to keep the dressing in place, I feel safe in *estimating* it to have been not less than six or eight fluidounces.

## BACTERIOLOGIC NOTE.

### *A CULTURE-MEDIUM FOR BACTERIA.*

BY A. M. BLEILE, M.D.,
PROFESSOR OF PHYSIOLOGY IN THE OHIO STATE UNIVERSITY, COLUMBUS, O.

TO the already long list of culture-media I wish to add the formula of another. White of egg is thoroughly shaken with ten volumes of water, and for every hundred c.cm. of this mixture one c.cm. of hydrochloric acid is added, with a few grains of pepsin, and the whole is kept in the incubator at 40° C. for four hours. The mixture is then neutralized with a solution of equal parts of sodium hydroxid and potassium hydroxid, boiled, and from 10 to 12 per cent. of gelatin or 1½ per cent. of agar added, again boiled and neutralized if necessary, and then filtered.

This medium has been in use in our laboratory for more than a year and has given general satisfaction. It presents several points of advantage over the ordinary media. In the first place, in the summer-time it is difficult to keep the meat-infusion the prescribed time without ice. The egg-medium has the advantage of a greater initial freedom from spores and bacteria; it does away with the use of the somewhat expensive peptone; it requires less weighing and only one filtering; it is fully as rich in nitrogenous matter as the meat-infusion; and it is richer in salts.

## NEW DEVICE.

### *A NEW PLEXIMETER.*

BY BOARDMAN REED, M.D.,
OF ATLANTIC CITY, N. J.

IN determining the position, size, and exact boundaries of the accessible abdominal organs, indirect percussion offers distinct advantages over direct percussion. It enables the physician to detect more delicate shades in the percussion-note, such as those between the resonance over the stomach and that over the empty colon, and in determining the boundaries between the colon and the small intestine.

For the new specialty of diseases of the digestive organs, which is now assuming such great importance in the medical world, a good percussor and pleximeter are therefore indispensable. The percussors found in the instrument-stores are generally satisfactory, but not so the pleximeters. All that I have seen hitherto are inconvenient to use, and very awkward to carry in the pocket. The following cut represents a pleximeter I have devised to overcome these defects:

It is made of rubber of medium hardness, so as to be moderately elastic and yet rigid enough to permit of being pressed firmly against the part percussed. The ends are of unequal size, the smaller end usually serving as the handle, but in percussing between the ribs of children, above the clavicle, or in any place where very delicate percussion is necessary, the larger end may be used as the handle, while the smaller serves as the pleximeter.

## MEDICAL PROGRESS.

***Tonic Blepharospasm Simulating Ptosis.***—PERSHING (*American Medico-Surgical Bulletin*, June 1, 1895, p. 662) has reported the case of a lawyer, fifty-four years old, who complained of inability to keep the eyes open, developing in the sequence of excitement and anxiety, in conjunction with excessive smoking and great physical exercise. At first an extra effort was sufficient to raise the lids, but soon the forehead had to be wrinkled and the head thrown back, and sometimes the lids had to be held open with the fingers. For a time the difficulty occurred only in using the eyes in near work, or when they were irritated by the wind. To the patient it seemed that the lids were forcibly held together, and he discovered that pressure on a certain point on each cheek was nearly as efficient in keeping them open as actually holding them apart. Some astigmatism and hyperopia existed, but the muscular balance was perfect. The drainage of tears through the lacrymal duct was imperfect, and their accumulation provoked the spasm. The instillation of a drop of distilled water into either eye also caused contraction. Under the anesthetic influence of cocain the difficulty of keeping the eyes open disappeared. No evidence of organic disease could be detected, and the conclusion was reached that the condition was one of tonic blepharospasm of the orbicularis.

***Gonorrhea of the Rectum with Uro-genital Blenorrhea in an Infant.***—LEWI (*Archives of Pediatrics*, vol. xii, No. 6, p. 437) has reported the case of an infant, six years old, who, after treatment in a public institution for right-sided empyema, presented a discharge from the vulva and the anus. Just within the anal ring were small erosions, evidently ulcers in the rectal wall. On introduction of a speculum, the mucus membrane for several centimeters above the anal opening was found swollen, angry, spongy, and bleeding easily. Thickened pus, greenish in hue, came from the parts above, indicating

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involvement of the rectum higher up. There was a history of rectal tenesmus, with four or five passages daily. Not only were these movements attended with a purulent discharge, but the pus seemed to flow from the rectum in the intervals. The urethral opening was swollen, angry-looking, and discharged pus. The parts about the vulva were much inflamed, and thick greenish pus flowed from the vagina. Bacterioscopic examination of pus from both vagina and rectum disclosed the presence of gonococci. The infection is ascribed to carelessness on the part of a nurse in ordinary ablution, or in the use of an unclean syringe.

***Fatal Cerebellar Hemorrhage in a Young Woman, with Glycosuria.***—OLIVER (*Lancet*, No. 3742, p. 1237) has reported the case of a woman, nineteen years old, who, while apparently in good health, suddenly lost consciousness. The pupils were contracted and equal, and did not react to light, and there was no paralysis. The pulse was 22 and the respirations 10 per minute. No cardiac murmurs were detected, and there was no peculiar odor of the breath, and no evidence of poisoning. The urine was withdrawn by catheter and contained no albumin, but a large quantity of sugar. Despite active treatment death ensued thirteen hours after the first symptoms. Upon post-mortem examination the only lesion found was a blood-clot in the middle lobe of the cerebellum. The superior surface and the posterior surface adjoining the inferior surface of the middle lobe were lacerated, exposing the clot, which was found to extend across the center of the organ, approaching quite close to the surface of either side and splitting the cerebellum into an upper and lower layer, though there was no evidence of a new-growth.

***Supernumerary Urethra.***—At a recent meeting of the Académie de Médecine PÉAN (*La Presse Médicale*, June 1, 1895) presented a girl, fifteen years old, who had suffered with dribbling of urine from birth. On examination a prominence was found upon the anterior wall of the vagina, increasing in volume with physical effort, and diminishing in the recumbent posture. Upon compression of this swelling with the finger urine was observed to escape, not from the normal urethra, but from a second opening, about 3 mm. below. A stylet introduced into this opening penetrated into a cavity from which also urine escaped. On occlusion of the lower opening with the finger and compression of the tumor this was reduced in size and the patient felt a desire to pass urine. It thus appeared that there existed a diverticulum of the bladder with a supernumerary urethra, as a result of which, in the absence of a sphincter, there was dribbling of urine. The condition was relieved by exposing and excising the supernumerary parts.

***The Nature and the Treatment of Pernicious Anemia.***—STOCKMAN (*British Medical Journal*, No. 1794, p. 1085) expresses the opinion that pernicious anemia is not a special disease, but is secondary to numerous exhausting conditions. These induce an initial anemia, which is followed in certain cases by degenerative changes in the bloodvessels. Capillary hemorrhages result and induce an excessive degree of anemia. Some cases are due chiefly to external bleeding, which accounts for the characteristic symptoms and post-mortem appearances. The treatment should, therefore, be based on etiologic considerations.

## THERAPEUTIC NOTES.

***Methylene-blue for Filaria Sanguinis Hominis, with Chyluria.***—FLINT (*New York Medical Journal*, June 15, 1895, p. 737) has reported the case of a well-developed colored man, twenty-two years old, born in the West Indies, engaged as a bar-porter, and residing in the United States for ten months, who presented himself with headache, pain in the sacral region, slight elevation of temperature, and a history of rapid emaciation and muscular weakness. The urine looked like rich milk, being perfectly opaque, with no tendency to precipitation. Its specific gravity was found to be 1.014, its reaction acid. After filtration approximately 2 per cent. of albumin was found present, but no sugar. Upon agitation with ether the urine became perfectly clear. Microscopic examination disclosed the presence of large quantities of finely divided fat-globules, chyle-corpuscles, and a considerable quantity of apparently broken-down matter. No casts were discovered, but there were a few blood-corpuscles. Examination of blood removed from the right ear at 12.30 A.M. disclosed the presence of embryonic filariæ. The patient was given two grains of methylene-blue at intervals of four hours, and on the following night the number of filariæ was found diminished, their movements sluggish, and their bodies, as well as the blood-plasma, to some extent stained blue. The urine lost its milky and turbid appearance, and became perfectly transparent, although deeply stained a characteristic greenish-blue. The treatment was then discontinued, but the urine became milky, and contained filariæ. The patient was again given methylene-blue, and three days later dead and partially disintegrated filariæ were found in the blood, deeply stained with blue. Treatment was discontinued at the expiration of five days, and no further symptoms appeared. Reference is made to the successful use of methylene-blue in the treatment of cases of gonorrhea, as well as malarial fever.

***The Treatment of Whooping-cough with Cocain.***—WELLS and CARRÉ (*Lancet*, No. 3745, p. 1429) report the treatment of 323 cases of whooping-cough during the autumn and early winter of 1894 with cocain hydrochlorate dissolved in water in doses (gr. $\frac{1}{16}$–gr. $\frac{1}{8}$) based on the standard of a one-grain dose for an adult, three or four times a day, by the mouth. Among the whole number there were two deaths, both in infants under six months of age—one from broncho-pneumonia, and one from persistent vomiting. In no case were evil effects observed. The only prominent manifestation was in some cases slight relaxation of the bowels. The average duration of the disease under this mode of treatment was about three weeks, and in mild cases about a fortnight or less.

***For the Relief of Stings of Insects.***—

℞.—Solution of ammonia . . 7 parts.
Collodion . . . . . 3 "
Salicylic acid . . . . 0.3 part.

—*American Journal of Pharmacy.*

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SATURDAY, JULY 13, 1895.


## DEMON-POSSESSION AND ALLIED THEMES.

"THE age of miracles is past" has become a proverb, but like all proverbs it is hardly half-truth. Miracles are occurring all the time if we had but the "eye of faith" to perceive them. In civilized communities they are unknown; they are unnecessary since the spread of the Gospel, say the orthodox—but other lands are more fortunate. China, for instance, still rejoices in them, in the form of genuine "simon-pure casting out of devils" by the humble possessors of the true light, according to the Rev. J. C. Nevins, D.D., whose 500-page volume is that of this article. Probably if we were blessed with the same degree of civilization as "The Flowery Kingdom," we should see similar wonders. Like the *ignis fatuus*, all they require is sufficient darkness to enable their light to be seen. The Reverend Dr. Nevins had no need to go to China in search of such marvels as his pages are filled with; the bottom-lands of Flat Crick and the gullies of the Great Smoky Mounting would have yielded an even richer trove of specimens to the expert miracle-stalker.

The book is a most extraordinary composition. Nothing but the evident sincerity and devoted philanthropy of its author, who gave his whole life to missionary work and literally died in the harness, would enable us to take it seriously. Going to China in early life a complete disbeliever in ghosts, "possession," etc., according to his own statement, he meets so many fearful and mysterious instances of demoniac opposition that he gradually becomes puzzled, and finally a complete believer in the supernatural character of these phenomena. He addresses circular-letters to many of his co-workers and finds them in different stages of the same conviction or bewilderment, and hence comes to the conclusion, "by the inductive of study of phenomena" (deliver us from our own terms!), that the same state of affairs obtains in China now as did in Judea at the dawn of Christianity (which is probably correct), and thereupon boldly proceeds to cast out devils himself and instructs his converts how to do so. He even mentions the particular passages of Scripture found most effective in the connection. He feels himself transported to the days of the Apostles, and refers complacently to the "intimate connection with the progress of Christianity in the neighborhood" of these feats. He declares that "from a large correspondence and personal acquaintance with missionaries in China . . . I have only known two who have expressed positive unbelief in the reality of these possessions."

A number of illustrative cases are given in support of this startling position, and then our "inductive investigator" proceeds to fill up the remaining four-fifths of his volume with chapters on remarkable instances of "Possession (of a most familiar order) in India," "in Christian Countries," "Evolution and other Theories," "Spiritualism," "Teachings of Scripture," and "The Literature of the Occult," etc.

The only original part of the book is the small portion of personal experiences and responses to a circular-letter, and is of a most disappointing nature. Beginning with a simple haunted house, which was rented very cheaply as a mission-station on that account, and then the demon driven out by holding evening-prayer, only, however, to enter another house in the near neighborhood. Of this the poor inhabitants not unnaturally complained and came with praiseworthy thriftiness to demand damages therefor from the native mission-teacher. The latter dignitary was equal to the emergency and proceeded at once to the house with a New Testament and a prayer printed on a large card. The

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Testament was read, the woman affected promptly restored, the prayer posted on the walls as a preventive. The result, in Dr. Nevins' own words, was that "they were not troubled afterward, though the spirit was heard of trying to gain an entrance into other families in the neighborhood" (!). This is a fair sample of all that follows. Possession by "foxes," by badgers, by snakes (with which latter form we are only too familiar, and also with their evil spirit, whose mystic symbol is $C_2H_6O$), in Japan and India. The cases in "Christian lands" are even worse, plain hysteria, catalepsy, double personality, etc., some of them being actually quoted from Griesinger's *Mental Pathology*.

Spiritualism and theosophy are neatly brought into line of support and disposed of at the same stroke by being attributed to the activity of genuine evil spirits, to whom the mediums are "sold" in good old medieval style, while even "Dr. Jekyll and Mr. Hyde" and "Khalid" are dragged at the wheels of the argumentative chariot. Of course, the unspeakable W. T. Stead is not forgotten, and when anyone has to cite Mr. Stead as evidence it is a severe reflection upon the direness of his logical extremity.

In all seriousness and with a genuine respect for the author's devotion and evident sincerity, it seems wellnigh incredible that any man of his intelligence and education could extract the smallest atom of solid conviction from such a frothy mass of self-evident ghost-stories and fairy-tales, or could even relate them with seriousness.

The only way it can be accounted for is the influence of a life-long exposure to an atmosphere of belief in them. The instances in themselves are trivial, but the impressiveness of a vivid acceptance and dread of them by absolutely everyone by whom one is surrounded is overwhelming. Even Rudyard Kipling, that hard-headed Philistine of the twentieth century, has caught the infection and reveals traces of a belief that "other influences are at work in India," which is more than half genuine. The unconscious influence of environment is far greater than we imagine. How quickly one picks up the accent and idioms of a people by living among them, and habits of thought are wellnigh as infectious as habits of speech. There seems little doubt that constant association with the insane favors the development of eccentricities in their attendants, and even physicians. The moral tone of great criminal lawyers is said often to sink nearly to the level of that of their clients. And it would seem that even the missionary is unconsciously tinged by the heathenism among which he spends his life.

This work emphasizes a truth that has been growing in importance and recognition, that is, not only should our missionaries be medically educated, but they should have practical and clinical courses in mental diseases. A course of scientific study, however limited, would teach the differential diagnosis between "demon-possession" and mental abnormalism. Psychiatry kills superstition.

## THE TREATMENT OF SNAKE-POISONING AND THE ESTABLISHMENT OF IMMUNITY BY MEANS OF THE BLOOD-SERUM OF IMMUNIZED ANIMALS.

THE question of the treatment of snake-poisoning has at different times engaged the brightest minds in medicine in clinical research and experimental investigation, with the hope of discovering an antidote for this fatal form of intoxication. A new impetus has been given the subject by the recent developments in connection with the treatment of infectious diseases by means of the blood-serum of animals rendered immune through gradually increased dosage with virulent cultures of the respective micro-organisms. In a line with these observations are the results of an experimental inquiry undertaken by Professor Fraser[1] and embodied in a communication presented at a recent meeting of the Royal Society of Edinburgh. This paper dealt with the consideration of methods for rendering animals immune to the venom of various poisonous snakes, and of the use of the serum of such animals for transmitting immunity and also of combatting the effects of snake-poisoning.

Having determined the lethal dose of the respective venoms for lower animals, these were treated with a succession of gradually increasing non-lethal doses, until the actual minimum lethal dose was determined. The treatment was then continued until a dose far in excess of the ordinary lethal dose was tolerated without serious reaction or injury on the part of the animals. So successful were the experiments that, notwithstanding the various natural difficulties, it was possible to give rabbits by subcutaneous injection as much as ten, twenty, thirty, and even fifty times the minimum lethal dose without causing obvious symptoms of poisoning, the only observable

[1] British Medical Journal, No. 1798, p. 1339.

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phenomena being a rise in bodily temperature, continuing for a few hours, and loss of appetite, with decline in bodily weight. Not only was it possible thus to immunize animals against a specific venom, but it further appeared that animals thus immunized are capable of resisting the lethal action of other venoms, though in less degree. It was incidentally discovered that the protection thus conferred lasts for, at least, a considerable period of time, even when the last protective dose was not a large one. The explanation of these remarkable facts is believed to reside either in the production in the body by the influence of the venom of productive substances, or in the presence of these substances as an actual part of the venom itself, gradually accumulating with repeated administrations, whereas the lethal and toxic constituents of the venom are more rapidly destroyed or eliminated.

Having thus succeeded in inducing a high degree of protection in animals against the toxic effects of serpent's venom, the blood-serum of such immune animals was passed through a Chamberland filter and placed over sulphuric acid in the receiver of an air-pump. A perfectly dry and easily pulverizable solid was thus obtained, which could be kept unchanged for probably an indefinite length of time, and to which the name "antivenene" has been given. Four series of experiments were undertaken in which (*a*) the venom was mixed outside of the body with the antivenene, and the mixture injected under the skin of the animal; (*b*) the venom and the antivenene were injected almost simultaneously into opposite sides of the body; (*c*) the antivenene was injected a considerable time before the venom; (*d*) the antivenene was injected thirty minutes after the venom. The results of these experiments go to show that the blood-serum (antivenene) of animals protected against large doses of snake-venom is capable under varying conditions of administration of preventing lethal doses of the venom of the most poisonous serpents from producing death in non-protected animals. For the actual application of the antivenene to the treatment of snake-poisoning in man an endeavor is being made to obtain the large quantity that is requisite from a horse now receiving considerable lethal doses of cobra-venom, and from the same source it is hoped that a sufficient quantity will be obtained to allow of the examination of the chemic properties of the antivenene, with the object of discovering the constituents by which the antidotal effects are produced.

Results of a confirmatory character have been obtained by Dr. Calmette,[1] the head of the bacteriologic station at Saigon, China, whose methods were analogous to those of Professor Fraser. He, too, found that the venom of different animals is capable of conferring general immunity, though in varying degree. Rabbits rendered immune to snake-venom proved also resistant to abrin, while animals protected against abrin acquired a certain degree of immunity to snake-poisoning, diphtheria, ricin, and anthrax. In immunized animals injection of the venom is attended with hyperleukocytosis, while in untreated animals hypoleukocytosis develops. It was further discovered that snake-poison is rendered innocuous by admixture with a solution of calcium hydrochlorid or of gold chlorid.

The mortality from snake-poisoning in some parts of the world, notably in India and Australia, is very considerable, and a great saving of life must be effected by the conduct of Professor Fraser's investigation to a successful termination. We have here a further illustration of the yet not sufficiently recognized fact that the solution of no scientific problem is without practical bearing and utility. Even empiricism must have some sort of scientific basis, and the more strictly the practice conforms to the science the more permanent and successful will it be.

## EDITORIAL COMMENTS.

***The Treatment of Diphtheria with the Antitoxin.***—Favorable reports of the use of the antitoxin in the treatment of diphtheria continue to be published, but it is observable that the latest are couched in cautious and conservative language. The data appear not yet sufficient for a final conclusion, but it cannot be denied that the preponderance of sentiment, as well as the weight of statistics, tends to sustain the hope held out as to the efficacy of the antitoxic serum.

One of the most interesting and important contributions to this subject has recently been made by LEICHTENSTERN and WENDELSTADT (*Münchener medicinische Wochenschrift*, 1895, No. 24, p. 553), in which they present the results of a careful analytic study of cases of diphtheria coming under observation during a series of years at the Augusta Hospital at Cologne. This article is to be commended for its judicial tone and for the dispassionate manner in which it deals with a subject concerning which much has been written within a short time, and even more enthusiasm has been displayed. While expressing themselves in favor of the utility of the new remedy, they point out its limitations and call attention to certain fallacious conclusions that have been reached without mature deliberation.

The study embraces a series of 123 cases treated with

[1] Vide British Medical Journal, p. 1339.

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the antitoxin during 1894–95. With this they compare eleven series of similar numbers seen consecutively before, from 1892 to 1894. During the period preceding the use of the antitoxin the average mortality of all cases was 30.9 per cent. (with a minimum of 25 and a maximum of 39), while during the antitoxin-period it fell to 20.3 per cent.—a considerable reduction in the mortality.

During the antitoxin-period tracheotomy was required in 30 per cent. of the cases, with a mortality of 43.2 per cent., while in the previous periods operative interference was required in 32 per cent. of the cases (from 21 to 38.3 per cent.), with a mortality of 64 per cent. (from 56 to 76 per cent.). It is thus clear that while the use of the antitoxin exercised but little influence upon the proportion of cases in which tracheotomy was required, it caused a material reduction in the mortality among cases operated upon.

Among the 70 per cent. of cases not requiring operation during the antitoxin-period there were 10.4 per cent. of deaths, while among the 68 per cent. of similar cases (from 61 to 79 per cent.) seen previously, death occurred in 15 per cent. (from 9.2 to 27 per cent.). Both the proportion of cases in this group and the mortality were thus approximately the same, whether the antitoxin was used or not.

The net result of these figures is that the diminution in the mortality of cases of diphtheria treated with the antitoxin is attributable to the number of cases saved in which tracheotomy is required. Special attention is called to the fact that no evil results were observed from the use of the antitoxin, and the claim is sustained that the agent is totally innocuous.

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***The Treatment of Tetany with Thyroid Extract.***—One cannot avoid being moved with admiration of the consecutiveness of the steps—so like the solution of a mathematic problem—by which was reached the conclusion that led to the employment of preparations of the thyroid gland in the treatment of myxedema and allied conditions; and the success that has been attained has quite opened a new field in therapeutics. Of the diseases related to or dependent upon disordered function of the so-called ductless glands we have much to learn, and such knowledge must surely bring enlarged therapeutic resources. Thyroid therapy has shown itself capable of a useful influence not only in myxedema and cretinism, but also in some cases of exophthalmic goiter, in some of akromegaly, and in some of psoriasis. To this list we may now add tetany, which, in some cases at least, further observation may show to be a thyroid disease. BRAMWELL (*British Medical Journal*, No. 1796, p. 1196) has made a number of interesting observations upon the employment of thyroid extract in the treatment of tetany. In the case of a patient in whom tetany had developed after removal of the thyroid gland, and who was being treated with small doses of thyroid extract, he advised that the remedy be pushed in much larger doses. In the course of a short time, the tetany and other symptoms disappeared and the patient made a rapid and complete recovery. Expression is given to the opinion that operative tetany is merely one manifestation of acute myxedema resulting from arrest of thyroid excretion, and of this opinion the experience reported is considered to be confirmatory. On another occasion, on being consulted about a boy of eight years, who had previously been under his observation for tetany, BRAMWELL advised the internal administration of thyroid extract, with the result that in the course of three weeks the improvement seemed "almost phenomenal." The attack had existed for nearly a year-and-a-half and had been variously treated with arsenic, chloral, antipyrin, bromid, cod-liver oil, etc. The child had had whooping-cough and influenza, and several months before the onset of the tetany had been knocked down by swinging jute. It has been pointed out that cold seems to aggravate tetany and to induce relapses, and that the disease is much more frequent in winter and spring than in summer and autumn, and these facts are viewed as denoting another important point of relationship between tetany and myxedema, for it has been shown also that cold predisposes to the production of myxedema. On account of the association of tetany in infants with rickets and laryngismus stridulus, it is further suggested that thyroid extract may also prove of therapeutic utility in these two conditions. Should this utility be demonstrated, the conclusion would be reasonable that these several disorders are attributable to a deficiency or a modification of the thyroid secretion.

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***The Index Medicus.***—Every medical man interested in the welfare and progress of both his science and his art will have learned with deep regret of the unwillingness of Mr. George S. Davis to continue longer the publication of the *Index Medicus*. It now remains to be seen whether the profession will permit such an important, we may say indispensable, record of current literature to die or will unite in some concerted movement to sustain and carry on the great work. As a matter of fact, the duty really belongs to the government, but in default of such a satisfactory and logical disposition of the matter it devolves upon the medical body to advance the necessary means and provide the requisite support.

The subject is one that concerns not only the profession in America, but medical men throughout the world. In recognition of this fact the resident librarian of the Royal Medical and Chirurgical Society of London urges in the *British Medical Journal* scientific societies and scientific workers to subscribe to a fund for the continuance of the *Index*. He proposes that every English medical society should annually contribute at least two guineas for the support of the *Index*, and believes that sufficient could additionally be obtained from individual medical men to make an English guarantee-fund of not less than £400.

Dr. C. E. Sajous, of Philadelphia, sends from Paris to the editor of the *New York Medical Journal* twenty-five dollars, and suggests that two-hundred subscribers agree to contribute an equal sum annually. Mr. Davis has expressed himself in sympathy with this movement and offers to undertake the publication of the *Index* again, without profit or remuneration, provided a guarantee-fund be established that would secure him as publisher against loss. Should a surplus be realized it would be divided pro rata among the guarantors. We hope these efforts to save the *Index* will succeed beyond peradventure. The medical profession cannot afford to have them fail. We commend every one interested—and all should be—to communicate with Mr. Davis at Detroit.

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***Live-stock Sanitation in Pennsylvania.***—Act No. 66, of the Pennsylvania Legislature, approved May 21, 1895, provides for a Live-stock Sanitary Board, whose purpose it shall be to endeavor to control and suppress "dangerous, contagious, or infectious diseases of domestic animals." The Board is to consist of the Governor, the Secretary of Agriculture, the State Dairy and Food Commissioner, and the State Veterinarian, and is empowered to enforce and regulate quarantine of animals, destroy them if deemed necessary, and regulate the movements of their products. The Board is authorized at any time to enter any premises, farms, fields, pens, abbatoirs, slaughter-houses, buildings, cars, or vessels where any domestic animal is at the time quartered, or wherever the carcass may be, for the purpose of examination. It shall also take such proper measures as may be deemed necessary for the protection of the milk-supplies from contamination. If this Board will carefully perform the duties with which it is charged, we may speedily hope to see a better milk-supply in this State, and perhaps some solution of the vexed question of the relation of tuberculosis in cattle to human tuberculosis.

***The Number of Physicians and Surgeons in the United States.***—According to the Bulletin on "occupations" of the eleventh census, just issued, there were in the United States, in the year 1890, 104,803 physicians and surgeons, or about 1 to every 600 of the population. The total number of wage-earners of all occupations is placed at 22,735,661. There were 89,630 lawyers, 88,295 clergymen, 58,090 nurses and midwives, 17,498 dentists, and 9900 undertakers.

## SELECTION.

### THE AMERICAN MEDICAL ASSOCIATION AND PATENT MEDICINES.

THERE is no doubt that the members of the medical profession, as a class, are opposed to patent medicines. The encouragement these remedies occasionally receive from physicians is usually due to carelessness or inexcusable ignorance.

The American Medical Association, at its May meeting in Baltimore, placed itself clearly on record in regard to this subject, and in a manner that is highly commendable. It involves a much-needed reform in the Association's journal, as is shown by the following extract from the report of the Board of Trustees concerning that journal:

"During the year no advertisements of secret remedies have been accepted that were not accompanied by a formula, but to still further comply with what appears to be the desire of a large number of those interested in the success of the *Journal*, the editor, with the termination of present contracts, has been instructed to accept no advertisements of medicinal preparations, the proprietors of which do not give a formula containing the official or chemic name and quantity of each composing ingredient to be inserted as a part of the advertisement."

This report was adopted with considerable enthusiasm, and we think the Board need not have used the guarded language it did by saying they proposed to "comply with what *appears* to be the desire of a *large* number," for the sentiment of those present not only *appeared* to be, but actually *was unanimous*.

As many of the advertisements in the above-mentioned journal, as well as in many other medical journals, have long been a standing disgrace to the profession they represent, we, more than a month after the meeting, made an examination of the advertising pages of the Association's *Journal*, but were unable to notice that any decided change had taken place. We, therefore, concluded that the advertisers' contracts had not expired.

There were, however, a number of advertisements in which the formulæ were given, and the conclusion was that their contracts had expired, or else they were preparing to renew.

Two of these formulæ were so unique, and at the same time so interesting, that we venture to enlighten our readers by reproducing them here, as follows:

"ANTIKAMNIA.

"*Formula.* A combination of coal-tar derivatives of the series $C_nH_{2n-6}$, into which the amines have entered, forming the various amido-compounds. Antikamnia has as its base the derivatives of the amido-benzoles, so combined as to obviate the bad effects caused by many of this series of organic bodies whem administered alone."

"CAMPHO-LYPTUS.

"*Composition.* Eucalyptol, campho-thymic acid, hydrous chloral."

No possible good can result from publishing such formulæ as these. They are simply ridiculous, and the *Journal of the American Medical Association*, by admitting them, lays itself open to the possibility of being considered the most "gullible" medical journal on the face of the earth.

There is no secret about the faculty necessary to decide what should be admitted. We could name a dozen members of the medical profession who possess that inborn knowledge which would enable them to decide almost in a moment on the admissibility of an advertisement. The result, however, would be such a "clean sweep" in the advertising pages of the Association's *Journal* as to be apparent to the most casual reader.

There is another lesson to be derived from these so-called formulæ. We have heard a great deal in the past few years about legislation to control the manufacture and sale of patent medicines, and nearly all of the suggestions are based on the publication of the formula on the label. But the experience of the American Medical Association shows us that it will be necessary to define whall shall constitute a formula.—*American Journal of Pharmacy*, July, 1895.

## REVIEWS.

PERSONAL REMINISCENCES AND RECOLLECTIONS OF FORTY-SIX YEARS' MEMBERSHIP IN THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA. By SAMUEL C. BUSEY, M.D., LL.D., etc. 8vo., pp. 373. Washington, D. C., 1895.

THIS is the most interesting volume of medical *ana* that we have seen for a long time. The author tells us that he has not attempted to write an autobiography, but he was a conspicuous actor in many of the ethical con-

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troversies which he describes, and incidentally gives a good deal, though not enough, of information about his own personality.

Beginning the study of medicine in 1845, in the old-fashioned way, by entering the office of an old-fashioned doctor, he learned enough in his first year to know that private pupilage in an office in Georgetown, without a book more recent than 1820, and with only two or three rusty scalpels and a pair of tooth-pulleykins, did not supply the opportunities he desired, and therefore in 1846 he came to Philadelphia and entered the office of George B. Wood as a private pupil.

His chapter on the life of a student of medicine in those days, including a description of the methods of Dr. Wood with his private pupils, contains some graphic pictures, and makes it clear that such pupils had to study. He commenced practice in Washington in 1848, and the old residents of that city must enjoy his description of the condition of things there at that time. There were but two streets that were even partly paved, garbage was thrown into the alleys, and swine were the privileged and protected public scavengers. To jostle against or drive over one of these municipal functionaries when out on his tour of sanitary inspection insured a cash penalty or brief servitude in the work-house.

A large part of the book is occupied with the history of the Medical Society of the District of Columbia, of which the author has twice been President. Special attention is called to the active part taken in the work of the society in its early days by medical officers of the army and navy. One chapter is devoted to the disturbances that arose in connection with the proposition, in 1869, to admit physicians of African descent to membership in the Medical Society, disturbances that extended to the American Medical Association, and that lasted for several years.

Another chapter treats of some of the effects of the rule of the Medical Society that its members shall not consult with physicians not members of the society, and of some of the trials for violations of ethics, of some members of the society. This will be curious reading fifty years hence. Dr. Busey says, "There remain some regulations which fall short of the more advanced conception of medical ethics. These, at least some of them, are, perhaps, justifiable, in view of the peculiar environments of the profession in the District of Columbia. The absence of a medical practice law makes it necessary to retain the limitation of consultation to membership, and to those, not members, to whom it has been legally extended by definite designation. The District of Columbia is now the common rendezvous of the impostors and charlatans driven from the States by the enactment of medical practice laws, and some sharp and incisive mark of distinction between such refugees, both of the itinerant and permanent class, has become of imperative necessity, as well for the protection of the community as for the maintenance of the honor and dignity of a scientific profession. The retention of a fee-bill schedule, with its minimum and maximum charges for every distinct and definite professional service, partakes too much of the ill-advised rules of trades unions, which demand the same wages for the incompetent as for the skilled artisan; offers protection to the ignorant, in that it holds his services equal in value to those of the learned and skilled, and invites a class of unfit men to sneak into a benevolent and scientific profession who could not earn a decent livelihood as ordinary mechanics. The regulation in regard to fees and consultations, as did the organization of the Medical Society in 1819, and Medical Association in 1833, grew out of the necessity of protection from the wrongs, injuries, and disreputable practices of the horde of irresponsible and ignorant charlatans that infested and desecrated the infant city; and it is probable they will be continued in operation as long as such protection and distinction are made obligatory by the failure of Congress to enact a suitable medical practice law."

Dr. Busey has made a substantial contribution to the history of medicine in this country, and his book should be of interest to all members of the medical profession.

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THE TRANSACTIONS OF THE SIXTEENTH ANNUAL MEETING OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION FOR THE YEAR 1894. New York: D. Appleton & Co., 1895.

THIS volume contains many valuable and instructive papers. Among those especially interesting is the paper by Dr. Jonathan Wright, of Brooklyn, on "Papillary Hypertrophy of the Nasal Mucous Membrane, Compared with a True Papilloma." This is of especial interest from a diagnostic and pathologic standpoint. The accompanying plates are clear and well defined. There is an interesting report by Dr. Charles M. Shields of a case of a foreign body (cocklebur) in the larynx and its removal intact by means of Schrötter's tube-forceps. Casselberry has an admirable paper showing the association of nasal polypus with ethmoiditis, and recommends treatment by resection of the middle turbinated body. French makes some valuable observations as to results in cutting operations on the nasal septum, showing that with proper care the healing process goes on rapidly; also that there is little danger of weakening the septum. The case of compound follicular odontoma reported by A. W. de Roaldes is interesting from a pathologic standpoint, as it is an extremely rare condition. The accompanying plates are instructive. Dr. Harrison Allen's paper, "Demonstrations of Skulls, Showing the Effect of Cretinism on the Shape of the Nasal Chambers," is one of the most valuable papers contributed.

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ADDRESSES, PAPERS, AND DISCUSSIONS, SECTION ON SURGERY AND ANATOMY AT THE FORTY-EIGHTH ANNUAL MEETING OF THE AMERICAN MEDICAL ASSOCIATION, 1894.

THIS volume contains much of interest and value. John B. Roberts contributes an interesting paper, in which he combats the operative frenzy that has seized upon so many surgeons during the past few years. Wyeth discusses inoculations with septic or toxic agents in the treatment of malignant tumors, and concludes that sarcoma may be cured by septic infection. Allis contributes an able article in which he favors treating fractures of the lower end of the humerus in extension.

Amongst numerous interesting articles we note especially: Conner upon fractures of the lower end of the humerus; Deaver upon vesical tumors; Gaston on

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anal fistula; Bonwill on the surgical engine; Belfield on prostatic enlargement; Lovett on the operative treatment of joint-tuberculosis; and Reginald Sayre on the conservative treatment of tuberculous joints.

The publication of these *Transactions* in a book small enough to be conveniently handled is commendable.

FORMULAIRE DES MÉDICAMENTS NOUVEAUX ET DES MÉDICATIONS NOUVELLES POUR 1895. Par H. BOCQUILLON-LIMOUSIN, pharmacien de 1re classe, lauréat (medéille d'or) de l'école de pharmacie de Paris. Introduction par le Dr. Huchard, médecin des hôpitaux. Sixième edition, 1 vol. in 18de 340 pages.

THE 1895 edition of this familiar work contains a large number of new articles, among which may be noted the following: Alangin, Alphol, Antipyonin, Bromethylformin, Cathartenic Acid, Chloralose, Cristallin, Diaphtol, Diiodoform, Ferratin, Glycozene, Iodoformin, Medicated Milks, Loretin, Lycetol, Menacin, Paraform, Resol, Salumin, Serotherapy, Pulmonary Juice, Tannal, Thioform, and Vasogene. There are also here contained a large number of colonial and exotic plants that have been recently introduced into therapeutics, and which have not, as yet, found place in any other formulary, however recent. The book is a valuable little aid to practical medicine up to date.

THE RETROSPECT OF MEDICINE. A Half-yearly Journal Containing a Retrospective View of Every Discovery and Practical Improvement in the Medical Sciences. Edited by JAMES BRAITHWAITE, M.D. Lond. Volume 110. July–December, 1894. (Issued January, 1895.) London: Simpkin, Marshall, Hamilton, Kent & Co., Limited. Edinburgh: Oliver & Boyd. Dublin: Hodges, Figgis & Co.; and Fannin & Co. Leeds: W. Brierly, Bond Street.

WE have only to repeat concerning the one-hundred-and-tenth volume of Braithwaite's Retrospect the good opinion we have uniformly expressed of its predecessors. The judgment exhibited in selection, the preservation of the exact language of the authors quoted, the good index, and the wide range of reading represented by the journals cited, render it one of the best books of reference to current literature in the market.

TEMPERATURE-CHART. Prepared by D. T. LAINÉ, M.D. Copyrighted by W. B. Saunders, Philadelphia.

THIS chart is evidently intended as a record for cases of fever treated with cold baths according to the method of Brand. Provision is made for thirty-two observations of temperature, pulse, and respiration in the course of twenty-four hours, as well as for notes upon the excretion of urine, the evacuation of the bowels, the amount of food, and other matters that may be considered important or interesting. Upon the reverse side of the sheet is a description of the method of Brand for the treatment of typhoid fever.

THE YEAR-BOOK OF TREATMENT FOR 1895. A Critical Review for Practitioners of Medicine and Surgery. Octavo, pp. 490. Philadelphia: Lea Brothers & Co., 1895.

THIS issue of the *Year-book* maintains the reputation established by previous issues. Its contents naturally do not include everything new that has developed during the past year, but the attempt has been made to select that which is practical and promises to be of permanent value, and omit that which appears unimportant. The work has been done by twenty-three contributors whose names are well known in English medical literature. The name of the editor, however, does not appear.

ATLAS UND GRUNDRISS DER OPHTHALMOSKOPIE UND OPHTHALMOSKOPISCHEN DIAGNOSTIK. Mit 5 Text und 102 Farbigen Abbildungen auf 64 Tafeln. Von DR. O. HAAB, Professor an der Universität und Direktor der Augenklinik in Zürich. München, 1895. Verlag von J. F. Lehmann.

THIS excellent manual of ophthalmoscopic pictures will be welcomed by all ophthalmologists, by reason of the convenient size of the book, and because of the large number of capital illustrations of typical diseases of the eye-ground. An introduction treating of ophthalmoscopy is noteworthy, and a page of explanatory text accompanies each plate.

## SOCIETY PROCEEDINGS.

### AMERICAN LARYNGOLOGICAL ASSOCIATION.

*Seventeenth Annual Meeting, held at Rochester, N. Y., June 17, 18, and 19, 1895.*

FIRST DAY—JUNE 17TH.

DR. JOHN O. ROE delivered the President's Address, the subject of which was

THE RELATION OF DAMP AIR TO DISEASES OF THE UPPER AIR-PASSAGES, ESPECIALLY IN THE LAKE REGION.

He pointed out that no one region is good for all ailments. That beneficial for respiratory affections is generally bad for biliary troubles, and *vice versa*. The effect of any climate is due partly to its direct influence on internal organs and partly to its indirect influence upon the habits of the individual. In the Lake region diseases of the air-passages are very common, while the biliary disorders are comparatively infrequent. The region is characterized by great humidity, with sudden temperature-variations and a low mean animal temperature.

The amount of watery vapor in the atmosphere depends largely on the soil. It is relatively small where the soil is sandy and porous and drains quickly, even after heavy rainfalls; and it is relatively large where the soil is heavy, with an underlying stratum of clay. In the Lake region both soils are found. Cultivated soil signifies less moisture than uncultivated. The Lake region soil is highly cultivated and in so far beneficial in reducing the atmospheric humidity. The temperature is affected by the cold air that sweeps down from the great lakes. The changes of temperature are frequent and rapid. The early warm days of spring are followed by chilling blasts from the North. The amount of cloudiness is considerable, averaging six-and-one-tenth days out of ten for the past twenty-five years. The average

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rainfall of the Rochester district is 27 inches, the mean annual temperature 40°. Other localities possessing the same general characteristics may be free from the cold-air currents and thus present a very different resulting climatic condition.

Damp air is injurious to the body in that it checks insensible perspiration, and hence there result endosmosis through the mucous membrane and a checking of elimination, both of which lead to turgescence, hyperemia, and hypernutrition. The nose bears the brunt of this bad influence, owing to both its direct exposure and its normally abundant vascular supply.

A peculiarly pernicious habit is that of sleeping in cold weather with the window wide open. The body is subjected to the influence of damp air at a time when its natural reactionary resistance is low, and the patient sleeps in a temperature that would be undesirable if he were awake. Hence we have that frequent naso-pharyngeal tumescence, with its characteristic symptom-group, known as the "American Disease."

We must learn to drain our lands and houses thoroughly and how properly to ventilate our sleeping-rooms.

DR. E. FLETCHER INGALS, of Chicago, read a paper on

DESICCATED THYROIDS IN GOITER.

He related that during the past fifteen years he has treated eighty-one cases of bronchocele and exophthalmic goiter. He gave potassium iodid thrice daily in doses of from five to ten grains. If no improvement resulted in two or three weeks, he gave tincture of iodin in doses of from five to twenty-five drops in capsule, followed by a large draft of water, or, in connection with this, injections of from 3 to 5 per cent. solution of carbolic acid in glycerin and water, from twenty to fifty minims being injected once a week.

For the past four years he has used the thyroid preparations and the desiccated preparations in his last six cases of goiter. Six grains of this represent one entire gland. All of his cases, except one, are still under treatment, and had been previously treated according to the old method. In addition, Dr. Ingals has obtained reports of forty-four cases treated by other physicians. Of one series of twenty-five, all but seven were improved. The neck was reduced in size, but the remedy seemed to cause headache in 30 per cent., dizziness in 37 per cent., and increasing rapidity of the pulse in 25 per cent. Out of the whole number of fifty cases the size of the neck was reduced in thirty-eight. Out of seven cases of myxedema improvement was noted in five. In addition to the unpleasant symptoms noted previously, there have also been observed trembling, backache, weakness, nausea, loss of weight, and in one instance uterine contractions.

Dr. Ingals summarized his conclusions as follows:

1. Thyroid preparations show powerful physiologic effects on the nervous and circulatory systems. These symptoms result from the daily use of from one-and-one-half to two glands, and there is reason to believe that too large quantities might produce fatal results.

2. The desiccated preparations are best. Internal use yields as good results as does hypodermic injection, and the initial dosage of the preparations should be two grains, which may gradually be increased to eight.

3. The effect on bodily weight is uncertain, varying not only in different patients, but also at different times in the same individual. Alleged disturbances from the remedy may be due to incidental digestive disorders.

4. The remedy is useful in myxedema.

5. In non-exophthalmic cases the cardiac condition is sometimes aggravated rather than relieved. Cystic conditions are not affected.

6. Outside of the foregoing conditions there is none in which thyroid therapy promises any good results.

In discussing this paper, DR. E. L. SHURLY, of Detroit, expressed disappointment at his own results in some eighteen or twenty cases subjected to thyroid treatment. He mentioned the case of a boy from whose neck a large thyroid was removed by operation. The patient seemed to develop somewhat, but did not grow in size, and three or four years later he was mentally apathetic and had a peculiar piping voice. Laryngeal examination showed normal movement of the arytenoids and the bones, but the latter did not assume the normal tension in phonation. Thyroid feeding for two years improved the throat-condition, though previous hypodermic use of the remedy had been without effect. He would condemn the total extirpation of the gland in view of the bad condition that may follow such a radical procedure. The leaving of a small portion seemed to prevent such an untoward result.

DR. W. E. CASSELBERRY, of Chicago, had treated one case of exophthalmic goiter with fresh thyroid gland, with improvement, but not cure. He alluded to a recent paper by Paul Bruns, who had found that the younger the patient the better the result. Thus of the cases in the first decade of life all were cured; in the second decade, 75 per cent. were cured; but after this age the results were less satisfactory, and after the fortieth year decidedly unsatisfactory.

DR. INGALS, in closing, said that the drinking of distilled water should be insisted upon in this disease, as bad water seemed to be in many instances the distinct etiologic factor.

DR. W. E. CASSELBERRY read a paper on

ELECTROLYSIS BY A CURRENT-CONTROLLER FOR THE REDUCTION OF SPURS OF THE NASAL SEPTUM,

and described a special apparatus to be used with the Edison (continuous) current. The ideal electrolytic current should be one of moderately high tension (voltage) He employed the bipolar method in *séances* of from six and of comparatively low current-strength (ampèrage). to eight minutes and with from fifteen to forty milliampères. His needles were made of irido-platinum. His personal experience consisted of ten cases, which, for this purpose, he divided into three types:

1. Strictly cartilaginous spurs. These can be removed by electrolysis, but the method is more tedious and less brilliant than other procedures. It is free from hemorrhage, but is not a universal substitute for time-honored surgical methods.

2. Spurs made up of both cartilage and bone. These will reduce in size in proportion to the amount of cartilaginous element present.

3. Spurs wholly bony. These cannot be reduced by electrolysis. Needles will not penetrate them, and the process will not resolve bone.

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4. Deviations cannot be remedied by this method.

DR. W. H. DALY, of Pittsburg, condemned electrolysis as a mere theory rather than a fact. He prefers the usual surgical procedures, especially the trephine driven by the De Vilbiss motor. He contended that Dr. Casselberry's apparatus, moreover, could not be used with the customary alternating current.

DR. JONATHAN WRIGHT, of Brooklyn, thought the method had a field of usefulness in cases in which pulmonary tuberculosis or other debilitating condition was present and a serious result might follow the usual surgical methods.

DR. INGALS said that the soft anterior septal spurs could be removed by the galvano-cautery point heated to whiteness.

DR. S. HARTWELL CHAPMAN, of New Haven, thought Dr. Casselberry's apparatus faulty in that it did not subdivide the current finely enough to prevent shock when used in the nose.

DR. A. B. THRASHER, of Cincinnati, inquired if the bipolar method was less painful than the monopolar.

DR. CASSELBERRY replied that it was. He admitted the force of Dr. Chapman's criticism and hoped to remedy this defect of his apparatus.

DR. GEORGE B. HOPE, of New York, read by title a paper entitled

IS ACUTE TONSILLITIS IN ANY WAY DEPENDENT ON THE RHEUMATIC STATE?

He took the ground that the theory of acute tonsillitis being very generally attributable to an underlying rheumatic or gouty diathesis has not been substantiated by clinical observation. It was contended that patients subject to attacks of tonsillitis do not commonly give a history of rheumatism, proximate or remote, and that, on the other hand, the rheumatic individual rarely suffers from tonsillar inflammations. It is noteworthy that in later life the tonsils become less and less disposed to acute attacks, while the rheumatic tendency becomes more confirmed. Moreover, as a local acute manifestation, rheumatism selects a sero-fibrous rather than a muco-fibrous or lymphatic structure, as the tonsil. It was also maintained that suppurative peri-tonsillitis is clearly infectious and frequently a sequel of intranasal operations.

The conclusion was reached that the favorite anti-rheumatic treatment, as guaiac or the salicylates, addressed to the condition is either erroneous in practice or acts independently and by methods not clearly understood. Such remedies should not be considered specifics, but should be used in accordance with the varying conditions of the subject. Moreover, it has not been proved that the treatment does abort or mitigate the course of the disease.

Various new instruments were then exhibited by members of the Association, and the following papers were read by title:

FOREIGN BODIES IN THE ESOPHAGUS,

by DR. HARRISON ALLEN, of Philadelphia;

THE INFLUENCE OF CHRONIC DISEASES OF THE THROAT UPON CERTAIN DEFECTS OF SPEECH,

by DR. D. BRYSON DELAVAN, of New York.

SECOND DAY—JUNE 18TH.

DR. JOHN A. FARLOW, of Boston, reported

TWO CASES OF LIPOMA.

One was in a boy, aged two years, who presented a lipoma of the inner side of the right cheek. Nothing had been noticed till one day the child seemed to have a little blood in his mouth. Examination showed a reddish lobulated growth, soft and movable, looking like parotid glandular tissue, and pedunculated, just opposite the mouth of Stenon's duct. Removal was effected with the cold-wire snare, and was unattended with hemorrhage. The second case occurred in a man, aged sixty-six years, who had had a tumor in his mouth for fifteen years. Seven years previously a "piece was removed with scissors." When first seen the man presented a mass in the front part of the mouth, but evidently attached a good ways back. He was obliged to wrap a piece of cloth around it and hold it away from the teeth to prevent injuring it. Suffocative attacks occurred from a piece of the mass falling down between the vocal bands into the trachea. With the cold-wire snare and scissors quite a large piece was removed. The patient was then lost sight of, but returned a year or so later with recurrence of the growth and return of the former symptoms. With the galvano-cautery snare the entire mass, which was just above and in front of the right arytenoid, was now removed.

DR. FARLOW made

SOME REMARKS ON THE REMOVAL OF THE TONSILS,

dealing with the choice of operative methods. It is necessary first to break up adhesions between the faucial pillars. Then if there are present the usual large projecting tonsils of childhood, with adenoids in the vault, anesthesia should be secured, the tonsils removed with the cold-wire écraseur, and the adenoids taken out. All this would be easy enough if large tonsils always occurred in large mouths. Unfortunately, however, they frequently occur in small mouths with narrow jaws. A special instrument was exhibited which is a modification of Hooper's snare, having a straight canula and a reinforcement of weak points. The wire is the usual No. 5 or No. 7 piano-wire. The tonsil should be pushed out from its bed by external pressure, and can, as a rule, be very quickly removed. Cocain is applied if no adenoids are to be removed, and ice is used freely after the operation.

Dr. Farlow has also had good results with Ruault's punch-forceps, though they seem very large and clumsy, and their use occasions some pain; also with Hartmann's conchotome, though it was devised for intranasal work. The latter is especially serviceable in getting out the deep-seated tonsillar tissue high up between the faucial pillars. He also uses small curved knives to cut up the surface of the tonsil so as to render the tissue available for seizing with the forceps. The galvano-cautery he has found very tedious.

In discussing the paper, DR. F. H. BOSWORTH, of New York, said that the more we regarded the tonsil as only diseased tissue the more rational would be our treatment of these cases. He had learned to expect possible bleeding whenever he cut into lymphoid tissue. In children this did not occur. Large rounded tonsils

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could easily be guillotined, but the removal of those spread out, and with adhesions to the faucial pillars, was a more difficult matter. These must be dug out, and no one instrument will answer for every case.

DR. INGALS had seen bleeding from small tonsils whose removal seemed indicated, but which were not large at the time of operation. Cocain did not anesthetize to any great extent, and it did promote bleeding.

DR. CARL SEILER, of Philadelphia, alluded to the canalization of the vessels in the indurated tissue as a cause of bleeding. He believed that the long diameter of the tonsils was horizontal rather than vertical, a fact overlooked by our instrument-makers.

DR. J. C. MULHALL, of St. Louis, laid stress upon the necessity of breaking up all adhesions between the faucial pillars.

DR. DALY thought that more bad surgery had been done on the tonsils than on any other part of the body. They form no part of the normal throat. The ordinary Mackenzie tonsillotome only partially accomplishes the desired result. We must finish by trimming with the knife and forceps. He had had four or five cases of alarming hemorrhage.

DR. CASSELBERRY believed that children do bleed severely at times, and whenever removing the tonsils with the guillotine always has a reliable galvano-cautery ready to use if hemorrhage occurs. It is difficult to separate the pillars, but if he can get the muscular element of the latter free he does not mind if he sacrifices a little mucous membrane.

DR. SHURLY thought that in every case we should first form an idea of the nature of the tonsils and the amount to be removed. We may have bleeding from an abnormal distribution of arterial twigs. In using ignipuncture he does not put the point of the cautery directly into the crypts, but burns diagonally across them, including the lymph-spaces. He endeavors to substitute an acute inflammation for an old proliferative process. He differed decidedly from Dr. Seiler as to the direction of the greatest diameter of the tonsil.

DR. BOSWORTH, of New York, reported a case of

MELANCHOLIA CURED BY INTRANASAL OPERATION.

It occurred in a man, aged forty-two years, who suffered from depressive melancholia, at first periodic, but later constant, and became unfitted for business. He complained of the eyeballs feeling as if too large for the sockets, and of a bursting pain between the eyes. He had at different times been operated on for varicocele, stricture, ligation of the pudic artery, removal of the testicles, and hemorrhoids. He had worn glasses, had his eye-muscles cut, and one eye enucleated. He had been circumcised, had his spine cauterized, and worn a seton in his neck. Examination of the nose showed the right nostril nearly occluded by a thickened bulging of the cartilaginous septum and the left middle turbinate thickened, with myxomatous degeneration, and evidences of ethmoid disease. The nostrils were freed with saw and snare, and all symptoms quickly disappeared. The man has since remained perfectly well.

DR. BOSWORTH also reported

A CASE OF SUPPURATIVE ETHMOID DISEASE, FOLLOWED BY INVASION OF THE SPHENOIDAL SINUS, ABSCESS OF THE BRAIN, AND DEATH.

A dentist, aged thirty-three years, suffered from an offensive discharge from the left nostril, and later from the right, with severe headache and neuralgia of the left side of the head, without fever. Pus flowed down between the left middle turbinate and the septum. A diagnosis of old ethmoid disease with probably recent involvement of the sphenoid sinus was made. Free drainage was established with a sharp gouge, and for six days marked improvement of all symptoms was noted. Later they grew worse, and with a three-sixteenth-inch burr an attempt was made to penetrate the sphenoid, though it was not possible to say whether or not the sinus was actually entered. On the following day a chill occurred, with a temperature of 106°, the development of semicoma, and paralysis of the left arm and face. A second rigor occurred, and was followed by death. No autopsy was held, but it was thought that death was due to a brain-abscess. The lesson of this case was that, while ethmoid disease is not directly dangerous as a rule, it may become so indirectly. Dr. Bosworth believes that most of the so-called sphenoid disease is really ethmoid. He has seen one-hundred-and-fifty cases of the latter, but only two of the former, and both were fatal.

DR. J. H. BRYAN, of Washington, presented

A FURTHER CONTRIBUTION TO THE STUDY OF SUPPURATIVE DISEASE OF THE ACCESSORY SINUS.

He reported cases of abscess of the right maxillary sinus resulting from dental caries; suppurative ethmoiditis terminating in caries of the anterior ethmoidal cells; abscess of the left frontal sinus resulting from nasal polypi and hypertrophic rhinitis; and abscess of the frontal, ethmoidal, and maxillary sinuses, with caries of the fronto-ethmoidal cells. The last was especially interesting, inasmuch as a communication existed between the frontal sinus and the antrum. It was uncertain whether this was the result of disease or an anatomic anomaly. The condition has been found a few times in the dissecting-room.

DR. WRIGHT related the history of a case of antrum-disease in which it was impossible to discover the origin of the pus. He would condemn too early operation in this class of cases.

DR. INGALS thought the best way to open the sphenoid sinus was from below rather than anteriorly. This it was possible to do with an instrument used by dentists, in which the revolving drill worked at right-angles to the shaft of the instrument.

DR. GLEITSMANN preferred to open the sinus with a Schaeffer's probe passed four-and-one-half inches upward along the side of the middle turbinate, about one-eighth of an inch below its lower border.

DR. SHURLY had seen many cases of nasal discharge which he had thought due to neuritis, secondary to organic disease of the brain, which had affected the olfactory bulbs.

DR. DALY thought it preferable to slit up one side of the nose and lay it over on the face. In this way we could reach the sphenoid sinus more easily and much more safely.

DR. MULHALL thought that the brain was better protected from injury in the sphenoid region than in the ethmoid. Sphenoid disease apart from ethmoid he believed to be rare.

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DR. THRASHER related a case somewhat similar to Dr. Bosworth's case of melancholia relieved by intranasal operation.

DR. W. K. SIMPSON, of New York, read a paper entitled

A CONSIDERATION OF SOME OF THE MORE IMPORTANT PRINCIPLES OF INTRANASAL SURGERY.

He said that the more accurately we could apply surgical principles to the treatment of nasal disease the greater would be our success. Conservative surgery might be defined as "knowing when not to interfere." We make mistakes occasionally, but they should serve as landmarks to guard against further error. He spoke particularly of the treatment of obstructive and hypertrophic rhinitis. The nose has a natural protective influence, and there is a pre-surgical or pre-operative period, during which we should do all we can by diet, clothing, habits, and a regulation of the general environment. In cases with a tendency to atrophy we should be very cautious about operating, and if we did operate we should endeavor to leave perfect symmetry and a smooth surface, with as little destruction of tissue as possible, and the least possible shock, hemorrhage, and danger of septic infection. The operation-wound should be treated as antiseptically as possible. Nasal surgeons are prone to be careless in minor details. Especial care should be taken to keep the left thumb and forefinger clean, as with these we wrap the cotton that goes on the applicator into the nose. Much of the "grippe," "severe cold," etc., after operation is nothing but mild sepsis.

DR. MULHALL believed that if we would use the cautery at a white heat and never allow it to cool *in situ* we would have no bad after-effects. He used a saturated solution of sodium bicarbonate to neutralize the effects of the radiated heat on the nasal mucosa.

DR. JAMES E. NEWCOMB, of New York, read a paper on

LUDWIG'S ANGINA,

which is generally defined by modern writers as a diffuse phlegmonous inflammation of the floor of the mouth and of the intermuscular and subcutaneous cellular tissue of the submaxillary region. The specific identity of the affection has always been a disputed point. Ludwig gave as its characteristic features: 1. A peculiar wooden induration of the tissues which does not receive impressions. 2. A uniform spread of this induration in such a way that it is always sharply bordered by a zone of entirely unaffected cellular tissue. 3. A hard, sublingual swelling, with a bolster-like mass around the interior of the lower jaw, of a deep-red or a bluish-red color.

It is impossible to harmonize the various conflicting statements, but it seems fair to regard the disease as an intensely infectious phlegmon, occurring under peculiar anatomic conditions. No pathognomonic germ has ever been discovered, only the ordinary bacteria of suppuration. Fatal cases show a general tissue-disorganization, with sloughs, ichor, or offensive pus.

Predisposing causes favoring the entrance of infection are dental eruption and caries, tonsillitis, disease of the buccal glands, and labial herpes. Cold, so frequently invoked as an exciting cause, is often but an undeterminable infection.

In the true Ludwig's disease the pus originates in a pyramidal space, the apex of which, situated below, corresponds to the point where the mylo-hyoid muscle borders the genio-glossus, and the base of which, situated above, stretches along under the tongue. The internal face of the inferior maxilla and the mylo-hyoid muscle form its external (oblique) wall, and the genio-glossus and mylo-glossus its internal (vertical) wall. The germs first invading the sublingual may also penetrate the submaxillary sheath, or the latter may be attacked by the sublingual pus which has disassociated the fibers of the mylo-hyoid muscle.

The local and general symptoms are those of pus-formation, with subsequent pressure on surrounding parts. Special stress is laid upon the appearance at the inner aspect of the dental arcade of a pad or button-like area of induration. A differential diagnosis must be made from simple submaxillary adeno-phlegmon, osteomyelitis of the jaw, and Fleischmann's hygroma.

Statistics of 58 cases are sufficiently accurate for analysis. Of these 44 occurred in males, 9 in females, and 5 in infants whose sex was not stated. The maximum age was sixty-six years, and the minimum three months; 40 per cent. occurred between the ages of twenty and thirty years. Recovery is noted in 33 and death in 25. Bacteriologic findings in 9 instances were: Cocci of erysipelas, 2; streptococcus pyogenes, 4; staphylococcus pyogenes aureus, 1; and albus, 1. In one instance there was found a bacillus a little longer and narrower that the B. coli communis, but distinguishable from the latter by culture-reactions.

Treatment may be summed up as early incision, subsequent rigid antisepsis, and general support.

Very recently Semon has advanced the proposition that this malady and acute edema of the larynx, edematous laryngitis, phlegmonous pharyngitis, and pharyngeal erysipelas are all but different varieties of septic inflammation of the throat, differing only in localization and grade of severity, but all having the same general etiology. He maintains that this view constitutes a simple clinical application of bacteriologic principles to this group of septic inflammations.

DR. H. P. SWAIN, of New Haven, thought that some cases of peritonsillar suppuration of the lingual tonsil gave a symptom-group very much like that described.

A discussion on

TUBERCULOSIS OF THE UPPER AIR PASSAGES

was opened by DR. JONATHAN WRIGHT, of Brooklyn, who spoke of the etiology. Recent advances in bacteriologic knowledge have led us to modify greatly the postulates of Koch. We now know that bacteria can penetrate epithelial surfaces. Some of them are destroyed by phagocytosis and others by the fibroid induration that they themselves excite. It is believed that tuberculous infection can take place through the adenoid tissue at the base of the tongue, but it is conjectural whether the bacilli are actually found in the tissue itself or in the papillæ.

Much of our experimentation on animals is not in exact accord with the actual problems of clinical medicine, and we cannot reason directly from the results that follow the injection of tuberculous material into the bodies of animals by means of the syringe. All of us receive some tubercle-bacilli. Autopsies show evidences of arrested tuberculosis in one out of every two or three

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bodies examined. The fatality is due not so much to the bacillus as to the bad general environment in which people live. Physicians come in contact with the bacillus daily, and yet the death-rate among them from pulmonary tuberculosis is not high. The bacillus alone is not enough to cause the disease.

As to laryngeal infection, the old corrosive-sputa theory of Louis has been abandoned. As to its frequency we are somewhat uncertain, for in pulmonary tuberculosis the larynx is often not examined; thus many lesions escape observation, and in many tuberculous ulcers are seen only when the patient is *in extremis*. Pyogenic cocci first make a breach in the epithelium, and then the bacillus enters. The bacillus itself cannot cause an abscess. Infection through glandular epithelium is a matter of dispute. There seems to be a wavy arrangement of the epithelium in the larynx that allows of its stretching during vocal effort, so that its protective influence is continuous. Lesions of the pharynx generally occur late in the disease or with acute miliary tuberculosis; nasal lesions generally at the end of pulmonary disease.

DR. C. C. RICE, of New York, presented a paper on

DIAGNOSIS.

*Nasal Tuberculosis.* Willigk found only one instance among 476 autopsies. It may occur either as an ulceration of the septum and floor of the nose, or as small papillary outgrowths, generally from the turbinates. It is doubtless frequently overlooked or it may coexist with specific septal disease. Nasal ulceration, with concomitant lung-disease, not yielding to potassium iodid, should awaken suspicion.

*Tuberculosis of the Pharynx and Larynx.* One case of the former and 237 of the latter were found in Willigk's series of 1307. Dr. Rice believed that faucial tuberculosis was associated more generally with acute miliary tuberculosis than with the usual chronic disease of the lungs. It may appear in the soft palate before it undergoes ulceration, but probably all parts of the system are invaded at the same time.

*Tuberculosis of the Larynx.* Eighty per cent. of all cases can be easily recognized. Of the remainder perhaps one-half require the microscope and administration of potassium iodid to determine definitely their nature. Unusually we have the typical semi-edematous, semi-inflamed conditions of the tuberculous infiltrations and the surface-ulceration, with its "moth-eaten" look. Such lesions are generally symmetrical and are situated upon an anemic base.

In incipient tuberculosis we find localized anemias of the hard and soft palate in throats otherwise healthy, and this with enlarged capillaries converging from the different portions of the palate toward the uvula. In addition we have elevation of the papillary layer in the inter-arytenoid commissure and feeble action of the internal laryngeal abductors. Dr. Rice regards recurring papilloma of the vocal bands as a suspicious circumstance, pointing toward tuberculosis. Arytenoid congestion or the slightest appearance of bogginess should also put us on our guard.

Then, finally, are the irregular cases with the frequent coexistence of syphilis and tubercle, or syphilis in the larynx and tubercle in the lungs. Rarely do we have with tubercle what is common enough with specific disease—adhesive inflammation between the anterior portions of the vocal bands. We may also have: 1. Granular hyperplasias or ordinary granulation-tissue. 2. The frequently seen inter-arytenoid water-like excrescences closely allied to papilloma of the larynx. 3. Small rounded tuberculoma beneath the mucosa, found to consist of true tubercle-tissue usually containing bacilli.

DR. SHURLY spoke of the

MEDICINAL TREATMENT.

He doubted whether much of the alleged post-mortem evidence of tuberculosis was entitled to credence. We may have "phthisis" without tuberculosis. The treatment is either local or general. Locally iodoform has given the speaker the best results. He uses ice freely. Climate and rest of voice were insisted upon. To modify pharyngeal and laryngeal ulceration chlorin gas, sodium formate, and iodoform are the most serviceable. As a specific plan iodin with gold and sodium chlorid has given good results; also oil of cloves and oil of castor. Gavage will enable the system to withstand the ravages of the disease and will also lower the temperature. We should never give meat-extracts alone, but always combined with vegetable foods in the form of gruel, which can be passed through a tube (sago, tapioca, etc.). Alcohol is generally too irritative for cases of laryngeal tuberculosis. Locally a mixture of eucalyptus, morphin, and cocain will greatly relieve pain. Tracheotomy is useless. So also in his hands were scarifying and curetting.

DR. J. W. GLEITSMANN, of New York, considered the

SURGICAL TREATMENT.

He considered curettement with the single or double instrument. Surgical treatment is, broadly speaking, either endo-laryngeal or extra-laryngeal. The former includes incision with knife or scissors, curettement, submucous injection, electrolysis, or the galvano-cautery; the latter, laryngotomy, with excision of diseased parts, extirpation of the larynx, and tracheotomy.

Dr. Gleitsmann has found on record eight total and seven partial extirpations of the larynx for tuberculous disease. In four of the cases of total laryngectomy the diagnosis was made before operation; in two the operation was performed on account of lupus and two had been considered carcinomatous; of the cases of partial laryngectomy, the operation was performed in five for tuberculosis, in one for lupus, and in one for supposed carcinoma.

Only six out of some seventy authors consulted speak disparagingly of curettement. It cannot, of course, exert a favorable influence on concomitant lung-disease, but we are justified in calling a case cured when, even if the lung-process continue, the laryngeal symptoms subside, the larynx looks normal, and no trace of the disease is found post mortem.

Contraindications are advanced lung-disease and hectic, disseminated laryngeal tuberculosis, leaving little or no area of healthy tissue, and extensive infiltration producing stenosis. Under the latter conditions tracheotomy is indicated. The claim made that curettement hastens the pulmonary disease is not supported. Hemorrhage, which, in any considerable amount is rare, can be checked by a mixture of lactic acid and ferric-

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chlorid solution. Pain is avoided by the repeated use of strong solutions of cocain.

Curettement is analogous to the excision of a tuberculous joint. It removes a focus of infection which is a constant drain on a weakened system, and is in properly selected cases the best procedure at our command. The double curet will often remove at one setting the arytenoid infiltration, which is the great cause of dyspnea. Such procedure also lessens pain, through its removal of the abundant nerve-proliferation. The indications are as follows:

1. Primary tuberculous disease without lung-complication.

2. Cases with concomitant lung-disease, either incipient or which has stopped short of softening or hectic.

3. Especially circumscribed ulcerations and infiltrations.

4. Dense, hard swelling of the arytenoid region, ventricular band, posterior wall, tuberculous tumors, and affections of the epiglottis.

5. In advanced lung-disease with distressing dysphagia from arytenoid infiltration.

Heryng's single curets are best suited for cleaning and scraping ulcerations, and Krause's double curets and Heryng's rotary curets for excision of tuberculous infiltrations. Subglottic lesions can be operated upon with Scheinmann's forceps, and with laterally bent forceps an attempt may be made to reach the ventricles. Post-operative quiet is absolutely necessary. Lactic acid or pyoktanin, 1 or 2 per cent., should be applied daily until cicatrization is complete. The latter process occurs in from one to five weeks. Well-defined ulcerations do better than shallow and extensive ones; dense infiltrations, which are generally localized, better than edematous conditions.

Dr. Gleitsmann's own cases numbered twelve, all with lung-complications. Two operations were for infiltration of the posterior wall alone; one for such infiltration with affection of the ventricular band combined; four arytenoidectomies; three arytenoidectomies, and excision of the ventricular band; and two of the latter alone. Arytenoidectomy had to be performed twice on each of the ten patients on account of recurring infiltration. One patient died from heart-failure, and another from advanced lung-disease. Four are without recurrence of laryngeal disease from six to ten months. One of these had an affection of the posterior wall, another of the ventricular band, and two of the arytenoid region.

(To be concluded.)

## NEWS ITEMS.

***The Examinations of the Illinois State Board of Health.***—The following preamble and resolution were unanimously adopted by the Illinois State Board of Health at a meeting held at Chicago on June 25, 1895:

*Whereas*, The faculty of the Northwestern University Woman's Medical College adopted a set of resolutions criticising the Illinois State Board of Health for having issued to three non-graduate students of said college the State certificate entitling them to practise medicine, whom they claim were not entitled to receive them, and charging the Board with having adopted a lax policy in numerous other instances, thereby seriously detracting from the usefulness of the Board; and

*Whereas*, Although the resolutions were "ordered to be placed before the Illinois State Board of Health," they were furnished to the various medical publications of the country simultaneously with their presentation to the Board, and before the Board had opportunity to make any defence; and

*Whereas*, The said college has not made any investigation of the methods or policy of the Board, and could not be in possession of information upon which to found such serious charges; and

*Whereas*, The secretary of the faculty admitted to the secretary of the Board that the resolutions were adopted without due consideration, and were not so applicable to the present Board; and

*Whereas*, In the past two years no certificate has been granted to any applicant upon an average rating of less than 80 per cent. on all branches, and the questions and examination papers and a tabulated record of all examinations are preserved, and are matters of record in the office; and

*Whereas*, It is not in the province of the Board to adopt any policy regarding the admission to its examinations of non-graduates, the law prescribing that "non-graduates shall submit themselves for examinations," and further prescribing that "the examinations shall be of an elementary and practical character." Therefore, be it

*Resolved*, That justice demands that the faculty of the Northwestern University Woman's Medical College, and all others interested, inform themselves as to the methods and policy of the Illinois State Board of Health in conducting its examinations, with a view to the establishment of the charges made, or of making such withdrawal, alteration, or explanation of the charges as the facts may warrant; and, further, that the faculty inquire as to whether any individual interest or personal animosity prompted the drafting and circulating of the resolutions.

(Signed) B. M. GRIFFITH, M.D.,
SARAH HACKETT STEVENSON, M.D.

***For the Prevention of Blindness.***—The following is the text of the legislation recently enacted in the State of Pennsylvania and approved by the Governor:

SECTION 1. Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania in General Assembly met, and it is hereby enacted by the authority of the same, that should one or both eyes of an infant become inflamed or swollen or reddened at any time within two weeks after birth it shall be the duty of the midwife or nurse or other person having the care of such infant to report in writing within six hours after the discovery thereof to the health-officer or legally qualified practitioner of the city, town, or district in which the mother of the child resides the fact that such inflammation or swelling or redness exists.

SECTION 2. That it shall be the duty of said health-officer immediately upon receipt of said written report to notify the parents or the person having charge of said infant of the danger to the eye or eyes of said infant by reason of said condition from neglect of proper treatment of the same; and he shall also enclose to them directions for the proper treatment thereof.

SECTION 3. Every health-officer shall furnish a copy

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of this act to each person who is known to him to act as midwife or nurse in the city or town for which such health-officer is appointed, and the Secretary of State shall cause a sufficient number of copies of this act to be printed and supply the same to such health-officers on application.

SECTION 4. Any failure to comply with the provisions of this act shall be punishable by fine, not to exceed two-hundred dollars, or imprisonment, not to exceed thirty days, or both.

***Doctor of State Medicine.***—Rush Medical College of Chicago offers a degree in State medicine to graduates of not less than one year's standing who shall pass a rigid examination, including State medicine and hygiene, chemistry, physics and meteorology, engineering, morbid anatomy, vital statistics, medical jurisprudence, and law, after having completed six months' practical instruction in a laboratory approved by the faculty, and studied practically out-door sanitary work for four months under an approved officer of health.

***The Medical Profession in Belgium.***—The total number of qualified practitioners in Belgium is 2950. Of these, 884 dispense their own medicine. The proportion of doctors to population is 1 in 2122. The number of practitioners in Brussels is 558, being in the proportion of 1 to 1370 inhabitants. The proportion at Liége is 1 to 1771; at Ghent, 1 to 2186; and at Antwerp, 1 to 2251. There are in Belgium 2372 midwives, or 1 to every 2640 of population.—*British Medical Journal.*

***A Medical School for Women*** in Russia is to be established at St. Petersburg, with means supplied from private resources. The curriculum is to correspond with that adopted by other foreign universities, and is to extend over a period of five years. Women under the age of twenty-one can only matriculate on the written permission of parents or guardians; married women on that of their husbands.

***Professor Thomas H. Huxley***, the distinguished scientist, died June 29th at Eastbourne, England, at the age of seventy years. He contributed liberally to a wide range of scientific subjects, and was an ardent disciple of Darwinian principles. Among his works are "Lectures on Comparative Anatomy" and "Lectures in Elementary Physiology."

***Honors to Dr. Roswell Park and Dr. George Dock.***—The degree of A.M. *honoris causa* has been conferred by Harvard College upon Dr. Roswell Park, of Buffalo, and Dr. George Dock, of Ann Arbor.

***State Board of Medical Examiners of New Jersey.***—At the June examinations of this Board over 40 per cent. (11 out of 26) of the candidates examined for licence to practise medicine in this State were rejected.

***Professor Ewald Hering***, of the University of Prague, has been made Professor of Physiology in the University of Leipsic as the successor to the late Carl Ludwig.

***Dr. Luther F. Halsey***, a prominent physician of Swedesboro, N. J., died suddenly on July 7th of angina pectoris, at the age of sixty-three years.

***For the Report of the Trial of Amick vs. Reeves*** we have received from Dr. G. R. Fowler, $1.00; Dr. B. F. Miller, $1.00; Dr. Edmond Souchon, $5.00; Dr. George E. Jones, $2.00.

***Dr. Ernest Laplace***, of Philadelphia, has had the degree of LL.D. conferred on him by Georgetown University, of Washington, D. C.

***Professor Mikulicz*** has been designated the successor of Trendelenburg in the Chair of Surgery in the University of Bonn.

***Dr. Frederick T. Roberts*** has been appointed Professor of Medicine in University College, London.

***Dr. Edward R. Palmer***, of Louisville, lost his life in a bicycle collision on July 5th.

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BOOKS AND PAMPHLETS RECEIVED.

Sectarianism in Medicine. Distinctive Features of Existing Medical Sects. By Edwin J. Kuh, M.D. Reprinted from the Journal of the American Medical Association, 1894.

Two Months' Service at the Methodist Episcopal Hospital, Philadelphia. By Edmund W. Holmes, M.D. Pamphlet. Read before the Philadelphia County Medical Society, 1894.

Report of a Case of Bifid or Double Uvula. By Hal Foster, A.B., M.D. Reprinted from the Western Medical Journal, 1894.

History of a Case of Indurated (Hunterian) Chancre of the Eyelid. By Charles A. Oliver, A.M., M.D. Reprinted from the Codex Medicus Philadelphiæ, 1894.

Description of an Artificial Eye Intended for the Study of Ophthalmoscopy and the Objective Determination of Ametropia. By Charles A. Oliver, M.D. Reprinted from the American Ophthalmological Society Transactions, 1894.

Some Additional Studies upon the Clinical Value of Repeated Careful Correction of Manifest Refractive Error in Plastic Iritis. By Charles A. Oliver, A.M., M.D. Reprinted from the University Medical Magazine, 1894.

Adenoids, with a Description of New Instruments for their Excision. By Arthur G. Hobbs, M.D. Read before the Tri-State Medical Association, Atlanta, 1894.

Scopolamin Hydrobromate. By Arthur G. Hobbs, M.D. Reprinted from the Atlanta Medical and Surgical Journal, 1894.

The Droitwich Brine Baths as Therapeutic Agents in Various Diseases. By W. H. Tomlins, L.R.C.P. (Lond.), M.R.C.S. (Eng.). Pamphlet. London: H. K. Lewis, 1895.

Lues Venera. By Henry Alfred Robbins, M.D. Reprinted from the Virginia Medical Monthly, 1895.

Vital Statistics of the City of Binghamton, N. Y. Annual Statement for the Year Ending December 31, 1894. By Daniel S. Burr, M.D., Health Officer and Registrar of Vital Statistics.

Kongenitale übermässige Entwickelung des S. romanum, Darmverschluss. Von Dr. H. Eisenhart. Sonder-Abdruck aus dem Centralblatt für innere Medicin, 1894, No. 49.

Festschrift zum fuenf-und-zwanzig-Jaehrigen Jubilaeum des Vereins Deutscher Aerzte zu San Francisco, Californien, 1869–1894. San Francisco, Cal.: Druck von Schmidt Label and Litho. Company.

Surgical Nursing. By Bertha M. Voswinkel. With 111 illustrations. Philadelphia: P. Blakiston, Son & Co., 1895.

Neudorfer's Method of Amputating Extremities, with a Report of Two Thigh-amputations. By A. H. Meisenbach, M.D. Reprinted from the Annals of Surgery, 1894.

Last One-hundred Abdominal Sections for Removal of Ovarian Tumors and Diseased Uterine Appendages. By R. Stansbury Sutton, M.D. Reported by J. P. Hunter, M.D. Reprinted from the Pittsburg Medical Review, 1894.

Biographical Sketch of Prof. John M. Scudder, M.D. By J. U. Lloyd. Pamphlet. Cincinnati, Ohio, 1895.

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# THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXVII. SATURDAY, JULY 20, 1895. No. 3.

## ORIGINAL ARTICLES.

### ACUTE PLASTIC IRITIS.

#### A Self-limited Disease.[1]

BY HENRY DICKSON BRUNS, M D.,

PROFESSOR OF DISEASES OF THE EYE IN THE NEW ORLEANS POLYCLINIC; SURGEON IN CHARGE OF THE EYE DEPARTMENT OF THE EYE, EAR, NOSE, AND THROAT HOSPITAL; LATE PATHOLOGIST TO THE CHARITY HOSPITAL, NEW ORLEANS.

IRITIS.

*Definition:* An inflammation of the anterior, variously colored portion of the uvea or middle coat of the eyeball. This middle coat, depending from the ciliary body posterior to the cornea, is visible through it, and is separated from it by the aqueous humor. It lies in front of and in contact with the crystalline lens under all conditions save that of extreme dilatation of the pupil.

*Varieties:* Serous, plastic, and purulent iritis. Serous iritis is, I believe, never a primary disease, but is always secondary and indicative of a choroidal affection. Any iritis may become purulent if the grade of inflammation rise sufficiently high. This is probable after a septic wound of the cornea, the iris, or the ciliary body. So an iritis may become subacute or chronic as the inflammation dies off, but not entirely out. It most often happens when some complication arising during the course of the disease prevents the restoration of the inflamed iris to a condition anatomically and functionally normal. Plastic iritis is characterized by the escape of plasma and white blood-corpuscles (lymph) from the engorged bloodvessels; this exudate, coagulating, obscures and clogs the tissue of the iris and glues it to the anterior face of the lens.

ACUTE PLASTIC IRITIS.

Acute plastic iritis is, therefore, the common and typical disease.

*Cause:* The predisposing causes are race, sex, and age. The negro is especially liable to iritis, as he is to all diseases of the uvea, either by reason of the saturation of the race with syphilis or from the embryologic relation between the uvea and his highly developed and functionally very active skin. Out of 173 unselected cases of acute, plastic, non-traumatic iritis recorded at my clinic in the Eye, Ear, Nose, and Throat Hospital, during the past two years, 73, or rather more than 42 per cent. were negroes, while people of African blood formed only 27 per cent. of the 4500 or more in attendance during the same period of time.

Men are more liable than women. Out of the total 173 cases 123 were males and 50 females—only 28 per cent., yet females form rather more than 50 per cent. of the total attendance at my clinic.

Out of 262 unselected cases the youngest was ten, the oldest seventy-one years old. The average age was thirty. I have taken the average of so many groups of cases that I feel perfectly safe in asserting the correctness of this figure.

Syphilis is by far the commonest exciting cause of the disease. Of 262 cases 115, more than 43 per cent., were undoubtedly of syphilitic origin; but the percentage, were it possible to determine it with certainty, is probably much greater. Rheumatism and gout are reckoned as causes next in frequency, yet only four out of 262 cases could with certainty be traced to this source. Rheumatic cases are certainly more common than this in private practice, and I suspect that most of these cases among the lower classes find their way into the general hospitals. Exposure to cold and dampness, especially local exposure, as, sitting by an open window duirng a railroad journey in inclement weather, can, and does, undoubtedly, excite a limited number of cases; but I doubt if this ever happens in a truly healthy person. Extension from adjacent structures, malaria, variola, scrofula, and tuberculosis are also causes cited.

*Prognosis:* The average duration of iritis, properly treated, is thirty days. Individual cases may recover in a week, or drag on for four or five months. This depends chiefly upon the presence or absence of complications, and this in turn hinges upon the severity of the initial attack and the promptness with which appropriate treatment is instituted.

*Description:* The degree of inflammation may vary from mildness to extreme severity. All the visible portion of the eyeball except the cornea, "the white of the eye," is injected, the injection being of a crude, raw-meat, red color, most marked immediately around the cornea. The cornea itself is usually very faintly hazy. This haziness, together with the presence of the exudate on and in the iris, gives it a dull, thick look, and in the

[1] Read before the Mississippi Medical Society at its annual meeting, April 11, 1895, at Jackson, Miss.

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case of light-colored eyes causes a marked difference in hue between the inflamed and the unaffected organ. A blue or gray iris looks greenish; a hazel one becomes a darker reddish-brown. The pupil (*sphincter iridis*) is contracted, or at any rate never larger than that of the healthy eye. Its movements are sluggish, or it is absolutely fixed. This is due not only to the congestion and to the presence of products of inflammation, but to the actual gumming down of the iris to the lens by the exuded lymph. To decide this point the patient is seated facing a window, and one eye covered with a rolled-up handkerchief pressed upon it with the flat of the hand, while the other eye is alternately exposed to or shaded from the light by the hands of the surgeon. Pain is a marked symptom, though in rare instances it is slight, or even conspicuous by its absence. In character the pain is neuralgic, aching, or gnawing, and comes in paroxysms or outbursts, with more or less lengthy intervals of freedom and rest. Following the course of the fifth nerve, it radiates over the forehead and temple, around the orbit, down the side of the nose, or causes the whole side of the head to throb with intolerable anguish. The whole eyeball may ache or feel sore, and it is, as a rule, tender to touch. The pain is usually much worse at night. There is usually a little flinching from light (photophobia), and sight is nearly always bedimmed (acuity of vision diminished).

*Complications:* Owing to the gumming down of certain points of the pupillary margin to the lens, while the intermediate portions remain free to dilate, the pupil may have an irregular shape. This becomes much more conspicuous after the use of a mydriatic. These points of attachment of the iris to the lens (*posterior synechiæ*) are almost certain to occur if the pupil is not well dilated at the beginning of an attack. If the entire circumference of the pupil is sealed to the lens, we have circular posterior synechiæ and exclusion of the pupil, a condition which seriously interferes with the proper nutrition of the eyeball. Anterior synechiæ are due to penetrating wounds or ulcers of the cornea, giving escape to the aqueous humor, which carries the iris with it into the corneal wound, where it remains entangled. Corneal wounds are, of course, very common in traumatic iritis, while all severe corneal affections are likely to bring about secondary iritis. White or yellowish-white exudate (lymph) from the iris may occupy more or less of the pupillary area (occlusion of the pupil), and the presence of such false membranes, together with posterior synechiæ, enables us to declare with certainty that iritis once existed. Blood sometimes escapes from the engorged vessels of the iris, and pus may be formed. The former is of course most common in traumatic iritis; the latter, in infected wounds of the tissue, in cases complicated with severe corneal ulcers and when gummata of the iris are breaking down. The fluids collect at the bottom of the anterior chamber, are more or less disturbed by movements of the head, and are known respectively as hypohema (hyphema) and hypopyon.

*Diagnosis:* There are only three conditions with which an acute iritis might be confounded: acute conjunctivitis, inflammatory glaucoma, and an acute corneal affection. The best method of defining and emphasizing the items of a differential diagnosis is by means of the "deadly parallel," so effectively employed by DaCosta in his now classic *Medical Diagnosis*. I have, therefore, drawn up the following scheme:

| *Acute Iritis.* | *Acute Conjunctivitis.* |
|---|---|
| The injection is red, most marked near the cornea, much less toward the conjunctival culs-de-sac. | The injection is red, but is much less marked near the cornea and most toward and in the conjunctival culs-de-sac. |
| The vessels run deeply and straight toward the corneal margin (ciliary region). | The vessels are superficial, tortuous, and irregular in distribution. |
| Conjunctiva not much thickened, and distribution of vessels on everted lids clearly seen; it is not readily thrown into folds by working the lower lid over the ball with the finger. | The conjunctiva is thickened, especially on the everted lids, where the distribution of vessels is concealed in the general redness; it is easily thrown into folds. |
| There is no considerable hypersecretion of mucus. | There is hypersecretion of mucus; it is seen in flakes on the cornea or rolled in the conjunctival culs-de-sac, and dried on the eyelashes; the eyes are glued together by it in the morning. |
| Pain is neuralgic and paroxysmal; usually severe and worse at night; eyeball is tender and slight photophobia. | Pain is not severe; the eyeballs smart, burn, and feel "sandy" and dry all the time; there is no tenderness and no photophobia if the cornea is unaffected. |
| The iris is thick and dull-looking, and, if light, is discolored. | The iris appears normal. |
| The pupil is small, sluggish, or fixed; irregular, not round. | The pupil is normal. The cornea is clear if not secondarily affected; vision is normal. |

*Keratitis.*

The injection is rose-pink; the vessels run straight and break into a fine network in the immediate vicinity of the cornea, where alone injection is conspicuous. The bulbar and palpebral conjunctivæ are not thick, and there is no hypersecretion.

Pain is moderate and pretty constant, sticking or lancinating; the eyeball is not tender; photophobia is severe and conspicuous; there is free lacrymation usually. The iris and pupil are normal, but sight of them is obscured in whole or in part by turbidity, opacities, scratches, roughnesses, foreign bodies, wounds or ulcers of cornea.

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| *Acute Iritis.* | *Keratitis.* |
|---|---|
| The cornea is clear unless there is a corneal ulcer or some other corneal complication. | The depth of the anterior chamber is normal. Sight is usually impaired by more or less corneal turbidity or opacity. |
| | *Acute Glaucoma.* |
| | The injection is red and the vessels distributed much as in iritis; the conjunctiva is not thickened; nor is there hypersecretion. The pain is of the same character as in iritis, but more severe: is not markedly worse at night. |
| The eyeball does not feel hard to the touch. | The eyeball is tender and very *hard* to the touch; the iris is discolored if light; the pupil is more or less *dilated*, sluggish or fixed; not black, but usually sea-green. |
| The anterior chamber is of normal depth. | The anterior chamber is shallow; the iris and lens are pushed close to the cornea; the cornea is hazy, steamy, or ground-glass-looking (this may be very slight). |
| Corneal sensitiveness is not diminished. | Corneal sensitiveness is diminished (if touched with camel's-hair brush or a wisp of cotton). |
| Vision not suddenly impaired; never completely lost, though sometimes dimmed. | Sight has been suddenly lost, or greatly dimmed with onset of the attack. |
| Atropin soothes, eserin greatly aggravates the pain. | Atropin-solution greatly aggravates, eserin mitigates all symptoms. |

*Treatment*: Local and constitutional.[1] Local treatment consists in the instillation of a strong solution of atropin sulphate, in hot bathing of the closed eye and adjacent parts, and in the application of leeches. The constitutional remedies employed will depend upon the cause of the disease. If rheumatism be the cause we prescribe, of course, salicylates, iodids, change of climate, a visit to Hot Springs, or whatever may be our favorite means of combatting the diathesis. If syphilis be to blame I prefer mercury in the form of calomel and Dover's powders, as this helps to relieve pain; but for a busy man who has to be much "in evidence," parvules and triturates are very convenient. I also give potassium iodid freely—not less than a dram a day—in plenty of water or milk. The Turkish bath is very useful in enabling the patient to take the drug without unpleasant effects. The usual common sense measures of regulating the bowels and avoiding undue exposure will, of course, be employed. Rest in bed for a day or two may be sometimes necessary, but as a rule the patient provided with dark glasses goes about as usual, and is probably the better for the out-of-door exercise and the distraction of his attention. It is to the vigorous and exact application of local measures, however, that attention should be persistently directed. The solution of atropin, our "sovereignest remedy," should not be weaker than one grain to the dram, and it should be instilled at least once an hour for the first twelve or thirty-six hours until the pupil is widely and smoothly dilated, and thereafter as frequently as may be necessary to maintain extreme dilatation. The first thirty-six waking hours are meant, for no one should awaken a patient with iritis from his all too broken sleep for any reason. If full dilatation is not obtained within this time it is rarely secured. When the instillation is made the patient should be lying down, or have the head thrown very far back, and the lids should be held apart for a minute or more to insure thorough application and absorption of the drug. The instillation of atropin should be followed by bathing the closed eye and neighboring parts with the very hottest water the skin can stand. Iritis is not a disease to be trifled with; the atropin-solution must be of full strength, it must be used promptly and effectively, and the water must be stinging hot, not warm, if the patient is to receive his eye from the hands of the surgeon, so to speak, anatomically and functionally restored. Few who are not especially experienced seem to realize the importance of this vigorous use of atropin in iritis and the sinister effect of permanent posterior synechiæ upon the future health and perfection of the organ. Once the pupil is fully and freely dilated, no matter how severe the suffering may have been, no matter how the case may have dragged along, when recovery does take place the disease is truly cured; but let permanent synechiæ be formed by too long delay, or by feebleness of attack on the part of the physician, and the weary road of relapse, of chronic inflammation, of plastic exudation, and pathologic cataract lies before the patient. When leeches are employed, three or four should be put on near the outer canthus, and the bleeding should be free. This and the other local measures markedly relieve the pain, for which purpose the inunction of a salve of one ounce of mercurial ointment to a dram of belladonna extract on the forehead is also very useful. Opiates are to be avoided if possible. It must be borne in mind, however, that this free use of atropin may bring about poisoning by the drug, an accident especially common in elderly persons, when opiates at once occupy the highest place of usefulness.

There can be but little doubt that constitutional treatment is very effective in removing the tendency to relapse in syphilic iritis, and we should be equally successful in rheumatic cases did we possess as certain means of exorcising the poison; but—and this is the most unorthodox portion of my paper—I am without evidence to show that the best and fullest constitutional treatment has the slightest effect in abridging the duration of iritis, while I have some

[1] All cases of "neuralgia" of one side of the head, accompanied by inflammation of the eye, must be regarded with extreme suspicion; they are usually cases of iritis or glaucoma.

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facts to show, what I have long suspected, that acute, non-traumatic iritis is a self-limited disease. By this I mean that while we prevent permanent injury, squeeze the blood from the iris, insure rest, and soothe pain, by the use of atropin, and so render the course of the disease shorter than if, utterly neglected, it were allowed to run through all the tedious stages of plastic adhesion and chronic inflammation, we do not, so far as I know, by the addition of the best constitutional treatment shorten the course of a case that is being locally treated. We can in such matters speak, of course, only of averages. I have now complete notes of 105 unselected cases of acute, non-traumatic, plastic iritis. They were treated by myself and others until they were discharged as fully cured. In 1893 I published a preliminary note on 69 of these cases in the *Transactions* of the Louisiana State Medical Society. At that time I found the average duration of 46 cases treated by both local and constitutional measures to be $30\frac{22}{46}$ days, and the average duration of 23 cases treated by local measures alone to be $24\frac{5}{23}$ days.

The 105 cases were collected in two groups: One of 63 cases at the Charity Hospital, from 1883 to 1891, and one of 42 cases at the Eye, Ear, and Nose Hospital, during the years 1893–1894. In group No. 1, 19 cases treated locally had an average duration of 20 days, while 44 cases treated both locally and constitutionally had an average duration of 39 days. In group No. 2, 33 cases treated locally had an average duration of 27 days, while 9 cases treated both locally and constitutionally, had an average duration of 29 days. Combining the two groups so as to get larger and, therefore, fairer figures, we find that 52 cases treated by local measures alone had an average duration of 25 days; while 53 cases locally and constitutionally treated had an average of 34 days. Or, having some regard to causation, we find that of 44 non-specific cases those treated locally had an average duration of 23 days; those locally and constitutionally an average of 37 days; of 61 syphilitic cases those treated by local measures alone had an average duration of 27 days; those locally and constitutionally an average of 31 days. The accompanying table shows these figures at a glance, and also shows all the possible combinations by which these results might be varied, and yet there is no material variation, twist and turn them as we may.

Group No. 1, local treatment only, average 20 days + 27 days (average of Group No. 2) = 47 days; mean = 23 days.

Group No. 1, local and general treatment, average 39 days + 29 days (average of Group No. 2)=68 days; mean 34 days.

All cases under local treatment only, 52 cases, average 25 days; all cases under local and general treatment, 53 cases, average 34 days; total, 105 cases.

All non-specific cases, 44; local treatment only, average 23 days, mean 25 days; local and general treatment, average 37 days, mean 34 days.

All specific cases, 61; local treatment only, average 27 days, mean 34 days; local and general treatment, average 31 days, mean 34 days.

It cannot be denied that a larger number of cases might lead to a different conclusion, but I do not think it probable, in face of the fact that the two groups collected at different times in distinct hospitals, and subject to the treatment of different surgeons, give practically identical results, and that the first obtained 69 cases analyzed in 1893 did not show essentially varying conclusions. The only fair deduction from this table is:

Non-traumatic, acute, plastic iritis runs an average course of thirty days' duration (twenty-five to thirty-five); variation in duration may be determined by the severity of the initial attack and by the length of time the disease is neglected, and (hence) by complications that arise (posterior synechiæ, etc.), but extreme dilatation of the pupil having been secured (by atropin and hot bathing), other treatment is powerless to abridge this average duration.

## GOITER IN MICHIGAN.[1]

BY GEORGE DOCK, M.D.,
OF ANN ARBOR, MICH.;
PROFESSOR OF MEDICINE IN THE UNIVERSITY OF MICHIGAN.

VERY soon after beginning medical work in Michigan I had occasion to call attention in clinical demonstrations to the frequent occurrence of goiter, and within a few weeks I saw more cases than I had seen in several years, with more material, in either Philadelphia or Galveston. Visits to some of the most promising goitrous districts failed of realization for several years, but in the summer of 1894, through the kindness of Dr. E. H. Pomeroy and his associates on the medical staff of the Calumet and Hecla Mining Company, at Calumet, Michigan, I saw a large number of very interesting cases. Since then I have sent out question-blanks to a large number of physicians in all parts of the State. From the answers to these, and from my own observations on patients in my clinic, I have obtained the data on which the following remarks are based.

Records of goiter in the United States are curiously rare. Since the beginning of the century, following the monograph of Barton,[2] no general survey of the subject seems to have been made, and even accounts of local endemics are rare. I have limited my own investigations to Michigan, although I have found from observation and inquiry that parts of Ohio and Indiana, still more the States

[1] Read before the Association of American Physicians, May 31, 1895.

[2] A memoir concerning the disease goiter as it prevails in different parts of North America. Philadelphia, 1800.

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(including parts of Canada) bordering on Lakes Michigan, Superior, and Huron, contain a good many cases. The prevalence of goiter in Canada has been mentioned by several writers. An important reference to the subject is contained in Dr. Osler's report on "Sporadic Cretinism in America."[1]

Goiter occurs in all parts of Michigan. It is most prevalent in the northern part (both peninsulas), but the southern part of the lower peninsula, especially the lower two tiers of counties from lake to lake, shows a large proportion. In Calumet, the physicians of the company kindly made a census and found fifty well-marked cases in a population of 14,000. At the Central Mine, a few miles away, my friend, Dr. John MacRae, found ten cases among less than 2000 people. In Adrian, in the southeastern part of the State, Dr. M. R. Morden reports thirty cases in a population of less than 9000. In Gaylord, Otsego County, Dr. N. I. Parmater writes that of all children born there, and reaching puberty, one-fourth have goiters. I have seen a number of cases from the counties directly adjacent to Otsego, but they are so sparsely settled that it is difficult to get definite information. I have not attempted to make a census of cases, as many of my correspondents do not give figures. Fifty-two reporters give a total of 477 cases, not including the cases in the copper-region. The extent of the disease, as shown by the figures, does not compare with that in the goitrous regions of Europe, but is, nevertheless, a matter of importance and interest.

In a large majority of cases the goiters affect natives of America, and usually also natives of the district. Immigrants of all nationalities, and many of these are represented in Michigan, are frequently affected. Among others, the French-Canadians must be mentioned. I made a special effort to discover the conditions as regards Indians, many of whom live in different parts of the State. Among the older writers there is a want of harmony concerning goiter in Indians. This may be due to a fact I have noticed, that the red man seems to repel scientific investigation. Most of the reporters living near Indians could say nothing about them. However, Dr. R. B. Armstrong reports goiter as common among the Indians near Charlevoix. Dr. J. Wells Church, of Drummond, Chippewa County, says they have it, but rarely. Dr. H. B. Hatch, of Hart, Oceana County, has seen a number of cases; and other cases have been observed by Drs. G. C. Hafford, of Nahma, Delta County; E. B. Patterson, of Michigamme, Marquette County; John W. Decker, of Lake City, Missaukee County; O. L. Ramsdell, of Petoskey; C. N. Sower, of Pentwater, Oceana County; and L. A. Harris, of Vanderbilt, Otsego County.

In Michigan, as elsewhere, goiter develops most frequently about puberty, next in early middle life. No age is exempt. No case has come under my observation in which the goiter was congenital, though I have known of several in very early childhood. Goiter frequently affects the parents, especially the mother, and also children. I have seen a family in which a mother and eight grown-up children had goiters.

As regards sex, females seem to predominate.

In most cases the goiters are comparatively small, not causing an increase of more than two or three inches in the circumference of the neck. Occasionally they are larger, and I am told of some "as large as a man's head," and of one that extends to the chin. I have never seen these myself, and even the largest native goiter I have seen would excite little interest in Savoy. Owing to this there is in most cases comparative symmetry in the growths, and I have seen but one case in which the tumor had a grotesque shape, so common in Switzerland. No histologic examinations have been made, but the tumors have all the physical characteristics of various forms of benign struma.

I have endeavored to learn of cases of cretinism, and, although I am told of one case, I have not seen it myself, and cannot vouch for the diagnosis. An interesting case coming under my own observation was that of an idiot girl, of eleven years, with a large goiter affecting the isthmus and both lobes. The goiter was of long standing. None of the physical peculiarities of cretinism was present.

No case of myxedema has come under my immediate notice. On the occasion of the report of a case before the Michigan State Medical Society in 1894, by Dr. J. A. Wessinger, I spoke of the extent of goiter in Michigan and the advisability of looking up cases of myxedema; but so far as I can learn no other case has been reported. It is well known that in certain places where goiter is endemic myxedema is rare or absent.

Exophthalmic goiter seems to be unusually prevalent in Michigan, but without any evident relation to simple goiter. I have not included the latter in this study.

Goiter affects the lower animals almost always where it is common in man. Horses seem most frequently affected, then dogs, calves, and lambs. Cows and sheep do not seem to have goiter as often as the others. In a short time, on one day, in Calumet, I saw six goitrous horses and heard of a number of others. Most of the goiters were small and unilateral, not as large as a man's fist, but I was told of larger ones. Dr. Morden, of Adrian, reports what was perhaps a cystic goiter in a squirrel.

[1] American Journal of the Medical Sciences, November, 1893, p. 503.

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Of all the numerous factors supposed to be concerned in the production of goiter, the only one regarding the existence and importance of which there is now any probability is some unknown substance in drinking-water. That water is the cause of endemic goiter is one of the oldest and one of the most universal beliefs, but the peccant material has been differently conceived at different times.

All the older ideas, according to which goiter was thought to be due to lime, magnesia, or other mineral in the water, have gone the way of the glacial water theory and the "bronchin" of Vest, and now, in accordance with current knowledge, the pathogenic substance is supposed to be either a microbe or a toxin. Nothing definite, however, is yet known in this connection. The relations of goiter in Michigan are such as to make all other causes doubtful, even if they had not been disposed of before. Here are no glaciers, no deep valleys, no long-continued mists and fogs, no carrying of heavy loads on the head, no inter-marrying. The cases come from all classes of society, but even in the poorest the hygienic conditions are no worse than in many places where goiters are never seen. Many cases that I have seen have lived amid unusually favorable hygienic surroundings. As for the geologic formation, sometimes looked on as important, we find goiters here as well on the drift as on the Laurentian, and in many intermediate formations.

In the cases of goiter that I have seen in Michigan a very large proportion of the patients have used well-water, and almost without exception my correspondents state that the same is true of the cases they report. Near Ann Arbor, where goiter is not so common as in some other parts of the State, one of my patients, a girl of sixteen years, developed goiter a few months after a new well was put in use, and I was told that several others who used the water got goiters about the same time. In response to my inquiry as to change of water and its results, Dr. N. H. Taylor, of Ludington, writes that goiter has become much less frequent there since lake-water was substituted for well-water. An opportunity for observing the effect of change of water is now being given at Calumet. Formerly all drinking-water there was derived from wells, but recently an abundant supply has been obtained from Lake Superior, the inlet being in a place as free from contamination as possible. The result of this investigation must be awaited with great interest.

Although it is not within the scope of this paper to consider the clinical features of goiter, I wish to add what testimony I can to a diagnostic feature that does not seem to be generally appreciated. Guttmann[1] has called attention to the fact that in the goiter of Graves' disease there is an arterial murmur over the tumor, which is not the case in other forms of goiter. Kocher expresses himself in accord with this view. For nearly four years I have paid attention to this sign, and have not yet seen a case of simple goiter in which there was a murmur, even in the case of very rapidly growing tumors. I have once heard a systolic murmur over the goiter of a horse. The growth was very hard, and I think the murmur must have been due to pressure. It had a blowing character, different from that heard over the goiter of Graves' disease, regarding which I agree with Guttmann. In cases of Graves' disease from which exophthalmos is absent this sign can, therefore, I think, be used with advantage.

I do not intend to speak now of the medical treatment of goiter. The difference of opinion expressed on that subject by my correspondents is characteristic of a disease like goiter, which in some cases can be removed by the royal touch, and in others withstands everything but the knife. I have made some trials with dried thyroid, kindly furnished me by Messrs. Parke, Davis & Company and by the Armour Company. The cases treated are too few to allow me to draw any conclusions, but lead me toward those reached by Bruns, Kocher, and others, viz.: that in young persons the remedy is useful, and should be tried further. The following observation, made on a recent case, is so interesting that I give it now:

A man of sixty-six years came to my clinic with a goiter which he said had grown in six weeks. Both lobes and the isthmus were enlarged, forming a symmetrical tumor, increasing the size of the neck more than two inches. The most remarkable thing about the tumor was that it was extremely hard, evenly nodular, and grew downward, so that the lower end could not be freed from the sternum and clavicles, and the growth hardly moved at all with the movements of swallowing. There was neither thrill nor murmur over the growth. The upper rings of the trachea were pressed in by the growth to a considerable degree. Iodin, internally and locally, including ointment of mercuric iodid, had been used without influencing the size of the tumor. From the alleged rapidity of growth and other features I suspected malignant disease, and advised the patient to remain under observation for a few days. He was put on gram-doses of thyroid powder three times a day. After taking this for two days without unpleasant symptoms, the patient was obliged to go home on account of business. The thyroid powder was stopped. A week later the man wrote that the goiter had disappeared, that the neck measured 15½ inches, one-half inch more than normal, and that the symptoms of pressure on the trachea had disappeared.

The sudden disappearance of goiters in young persons, especially vascular goiters, is of course com-

[1] In his Lehrbuch, and in the Deutsche medicin. Wochenschrift, 1893, No. 11, p. 254.

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mon. In this case, however, I think the medication must have had something to do with the change.

Although in most cases of goiter there are no symptoms and treatment is never asked for, in some unpleasant, dangerous, or fatal results occur, so that measures should be taken to check the disease, and the more important factors in prevention should be known.

In addition to improvement in the surroundings of the patient, when needed, there are two things to which attention may be drawn, sterilizing the drinking-water and removal of the patient to a non-goitrous district. The effect of change from well-water to lake-water, or river-water, should be more thoroughly tested. In the meantime all drinking-water in the goitrous districts should be boiled. For a long time I have advised goitrous patients to use boiled water, but, as they also used medical treatment, the effect cannot be determined. At the Congress of the Pyrenese Association in 1891 a memorial was addressed to the Minister of Instruction, in which the general use of filters was advocated. This may, no doubt, be of some additional value, but boiling alone can be practised more generally and more safely than the use of filters.

In my experience removal of a patient with a growing or intractable goiter to a part of the country where the disease is less common has been followed by complete disappearance of the tumor, and some of my correspondents have had similar experience.

I wish to express here my thanks for the useful information furnished by a large number of correspondents impossible of enumeration in the paper.

## EXTIRPATION AND COLOTOMY IN CASES OF CARCINOMA OF THE RECTUM.[1]

BY LEWIS H. ADLER, JR., M.D.;
PROFESSOR OF DISEASES OF THE RECTUM, PHILADELPHIA POLYCLINIC AND COLLEGE FOR GRADUATES IN MEDICINE; SURGEON TO THE CHARITY HOSPITAL AND TO THE OUT-PATIENT DEPARTMENT OF THE EPISCOPAL HOSPITAL, PHILADELPHIA.

COLOTOMY and extirpation are two recognized procedures for the relief of malignant disease of the rectum. Both operations offer the patient a chance of prolonging life; and, in addition, extirpation holds out the possibility, in selected cases, of effecting a radical cure.

The choice between these two methods is a question of uncertainty only in a relatively small group of cases. Extirpation is not to be considered in the majority of instances, for the reason that the disease is usually an incurable one, and, by virtue of its concealed position within the rectum, its presence is not revealed or even suspected until the growth has existed for some time. Furthermore, it is rare for carcinoma of the rectum in its incipiency to manifest itself by any symptom pointing to a lesion within the bowel. This is a familiar observation to all surgeons.

It frequently happens that a patient comes complaining of slight diarrhea or other mild rectal trouble, and an examination unexpectedly reveals the fact that carcinoma is present to such an extent that it is obvious that the neoplasm has existed for a considerable period. Consequently its complete removal is often rendered impossible. Again, the patient's vitality is such that so grave an operation as excision, requiring considerable time for its performance, is contra-indicated.

In arguing thus I would not convey an impression that I am opposed to extirpation for malignant disease of the rectum in suitable cases. On the contrary, I firmly believe it to be a perfectly justifiable operation when the growth is circumscribed and confined to the lower four or five inches of the bowel; provided, however, that the tumor does not involve all the coats of the intestine, that it has not attacked the viscera which are intimately associated with the anterior wall of the rectum, that it has not invaded the pelvic glands or, by metastasis, any of the other organs of the body, and, finally, that its growth be not rapid or have a tendency to spread widely. From these considerations it naturally follows that the number of patients who can be benefitted by excision of the disease is comparatively small.

Colotomy, on the other hand, is indicated in a large number of instances in which it is quite impracticable to attempt an excision. The advantages of the operation lie partly in the relief it affords to symptoms and partly as a means of retarding the growth of the neoplasm.

To indicate the relief afforded such patients by colotomy I cannot do better than quote the opinion of Kelsey on the subject, as expressed in the fourth edition of his work, *Diseases of the Rectum and Anus*.[1] This authority is not only a strong advocate of the operation, but is also in a position to judge of its merits by reason of his large experience. He thus states his views:

"As to the benefits arising from the operation too much can scarcely be said. That it prolongs life by the relief of pain, the preventing of obstruction, and retarding the growth of cancerous disease, is beyond question. That it substitutes in many cases a painless death for one of great agony is indisputable. The idea that it is as well to let a patient die as to subject him to a colotomy has no supporters among surgeons who have had any experience with these cases. Indeed, I think that the practitioner who to-day sat by and allowed a patient to die of obstruction because of any sentiment against this procedure would hardly be held blame-

[1] Read before the Surgical Section of the American Medical Association at Baltimore, Md., May, 1895.

[1] Pp. 409 and 410.



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less. I can only say that, after trying every other means of treatment and being obliged to admit the fruitlessness of them all, I have come, with most others, to admit the great benefits of colotomy, and *have never performed it in any case in which either the patient or myself has afterward regretted it.*" (Italics mine.)

In another article Kelsey[1] mentions even more minutely the advantages of this operation, as follows:

"Colotomy, especially inguinal colotomy, relieves pain; does away with the constant tenesmus and discharge from the rectum, which, by their exhausting effects are the immediate cause of death; delays the development of the disease by preventing the straining and congestion of defecation; prevents absolutely the complication of intestinal obstruction, which is another cause of death; enables the patient to sleep, eat, and gain flesh, and often makes him think himself cured in spite of the plainest prognosis to the contrary. Instead of passing his days and nights upon the commode, wearing out his life in the effort to free the bowel from the irritation, he has one or, perhaps, two solid fecal evacuations from the groin in twenty-four hours."

In conclusion, I would allude to one more topic, to wit: The choice of sites of opening the colon. I mention this subject with the sole purpose of eliciting the present views of the members of this society. My own belief is that the inguinal region is to be preferred in the majority of cases. Its advantages over the lumbar operation are, to my mind:

1. The smaller incision and lesser depth of the wound requisite to reach the colon, and the minimum amount of disturbance of the structures overlying the seat of operation.

2. The greater facility offered for the exploration of the abdomen, when such a procedure is required.

3. The better position for safe anesthesia during the operation.

4. The comparative ease with which the colon may be identified in this position and the little difficulty experienced in fixing the bowel to the skin without undue tension on the stitches.

5. The greater readiness with which a good spur may be formed.

6. The convenience to the patient of the site, for purposes of cleanliness and for the adjustment of pads; and

7. Recent statistics seem to indicate that it is the less dangerous operation.

1610 ARCH STREET.

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***Dr. John Guiteras***, at the request of the Surgeon of the Marine-Hospital Service, has gone to Tampa, Fla., to aid the government in formulating and effectuating rigid quarantine-regulations against yellow fever.

[1] New York Medical Journal, November, 1892.

# CLINICAL MEMORANDA.

## *AMYOTROPHIC LATERAL SCLEROSIS IN A MAN SIXTY-EIGHT YEARS OLD, SIMULATING AT FIRST PARALYSIS AGITANS.*

BY WILLIAM C. KRAUSS, M.D.,
OF BUFFALO, N. Y.;
PROFESSOR OF NERVOUS DISEASES IN THE MEDICAL DEPARTMENT OF THE NIAGARA UNIVERSITY; NEUROLOGIST TO THE ERIE CO. HOSPITAL.

C. B., aged sixty-eight years; height, 5 feet 6½ inches; weight, 190 pounds; occupation, lawyer; was an ex-judge of the Superior Court of B. His father died at the age of sixty-two years; his mother is living at the age of eighty-eight years. His grandparents lived to old age. He passed through a severe attack of measles when five years old, and made a perfect recovery. Some years later he was stricken with pneumonia and recovered fully; otherwise his early youth and manhood were passed without any noteworthy occurrences. He graduated from the University of Michigan when twenty-three years old, taught school for several years, and then began the study of law. He was eminently successful in his profession, and was elected Judge of the Superior Court of B., later becoming its Chief Justice. He was highly respected by men of all parties, possessed a rare legal talent, good judgment, and an opinion that was much sought after by his fellow-townsmen. He was a hard worker and a careful student, the early morning hours greeting him many times before his bed. He lived well, though not sumptuously, never indulged in excesses, was a moderate drinker, an ordinary smoker, took considerable exercise, and paid reasonable attention to his physical health. For seven years he had been affected every autumn with articular rheumatism, involving the joints of the lower extremities, while those of the upper remained exempt. Sometimes a gouty tendency was present, though not frequently. For seventeen years there had developed a subconjunctival hemorrhage sometimes in the right eye, sometimes in the left eye These hemorrhages would be absorbed in the course of a week or ten days and would reappear the following fall.

During the summer of 1893 he was troubled with vague symptoms which he ascribed to influenza, but he paid little attention to them. While in Chicago, attending the Fair, he noticed that it was hard for him to step over the gutters, his limbs seemed so stiff and "loggy." He tired easily while walking about the grounds, could not ascend the steps, and had to take his time in going from building to building. This was the first he observed of any difficulty in locomotion, and as he had some rheumatic pains in his limbs he naturally thought it was the result of his rheumatism. On his return home he still experienced the same difficulty in walking, and was obliged to take a carriage in going to or coming from his office. This continued to grow worse, and on January 9, 1894, I was called in consultation.

Although I had seen the man on the streets and in the court-room several times previously, I nevertheless was struck by his changed appearance, and, at first sight, made a diagnosis of paralysis agitans without tremor. So sure was I of my diagnosis that I communicated the result of my examination to the family physician, who

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informed me that he was also of the same opinion. The same diagnosis was made by a fellow-neurologist of Buffalo, and by another physician whose practice is a large and varied one.

Upon examination, I found a large and muscular man, with gray hair and whiskers, whose face wore the heavy masked expression so common to Parkinson's disease. The movement of the facial muscles was mechanical and measured, so that one could almost observe an interval of time between the volition or intention to move the muscles and their actual obedience to the will. His head was inclined forward, the shoulders were rounded and drooping, his hands lay motionless in his lap, but in the "bread-crumbling" or "holding-a-pencil" position, while his feet rested heavily on the floor. His speech was slow, solemn, deliberate, and in a monotone, very much unlike his natural delivery, which was rapid, forcible, and undulating. He complained of no pain, no disturbance of sensation, and "if I could walk better," he said, "I would be all right." His locomotion and station were identical with those of paralysis agitans, *i. e.*, the head and body were well inclined forward, the arms were held close to the body, the legs were stiffened and slightly flexed at the knees, and he moved them in a shuffling, obstinate manner, hardly taking the feet off the floor—resembling very much the gait of a surly, sulky child. Once started, it was difficult for him to stop unless he grasped something to support himself (propulsion).

Retropulsion was also present, but to a much less degree. The movements of the arms and head were slow, and accomplished as if trying to overcome some obstacle. There was nothing abnormal about sensation; the rectal and vesical reflexes were unimpaired; the organs of special sense functionated normally, except, of course, his speech. The tendon-reflexes and the muscular reflexes were neither exaggerated nor diminished; the muscular power was well preserved for a man of his age, and his mind was as clear and unobscured as in former days of activity and usefulness. The pulse ranged between 70 and 80; the temperature was never increased; the appetite was good, the bowels regular, and the urine normal; but his sleep was not the same restful sleep to which he had formerly been accustomed. Occasionally his attendants would notice a faint flush on his cheeks, and at night he would feel heated. I kept a careful watch over him in the hope of being able to discover the tremor as soon as it appeared, but instead of a tremor I observed other symptoms coming to the surface that seemed to shake my confidence in the former diagnosis. In the summer of 1894 the man began to complain of difficulty in breathing and of coughing, and his laughter was at times uncontrollable. Instead of the healthy inspiring laughter innate in a judge, it was a sickly puerile laughter without force or character. He was troubled greatly in swallowing, and had to eat very slowly and deliberately; sometimes in eating he would choke and have fits of coughing. His voice became husky, and the words were mumbling and hardly understandable to an outsider. His legs and arms were weakening rapidly, so that in the space of a few months he possessed hardly any control over them.

On December 1, 1894, an examination revealed the following condition:

The muscles about the shoulder, as the deltoid, trapezius, the rhomboids, major and minor; the arm-muscles, as the biceps, triceps, coraco-brachialis, the flexors, extensors, supinators, and pronators; and the hand-muscles, as the interossei, and the muscles of the thenar and hypothenar eminences, had undergone marked atrophy. The man could no longer raise the hands to his mouth, and the grip of the hands was *nil*. The shoulder-muscles were equally powerless. Contractures of the flexors of the fingers were present in the right hand, less in the left, and the right hand was beginning to assume the *main en griffe* appearance. Fibrillary contractions were present, more on the right than on the left side. The triceps and the biceps tendon-reflexes were greatly exaggerated, and likewise the muscular and periosteal reflexes. The masseter reflex could not be elicited. Sensation to touch, pain, heat, cold, and pressure was unaffected. Vasomotor disturbances were not present; the hands and feet were continually warm. The legs had become nearly powerless, and the man was unable to make much headway in walking, and none at all unless supported on both sides. The loss of power was not due to the wasting of the muscles, because, although considerable atrophy had taken place, the leg-muscles were still large and well preserved.

An electric examination of the muscles was not made. The patellar tendon-reflexes were greatly exaggerated; ankle-clonus was present, but only within the previous few weeks had it appeared. The rectal and vesical reflexes were unimpaired. Sensory disturbances were wanting.

An examination made on February 1, 1895, resulted as follows: The condition of the patient had grown steadily worse, and he now presented the typical picture of amyotrophic lateral sclerosis with implication of the medulla. The bulbar phenomena consisted in an unintelligible mumbling, with an occasional word or two clearly spoken, permitting the nurse to care for his wants. The labials and linguals could not be pronounced; the gutturals, however, could be pronounced quite distinctly, especially when the patient was not fatigued. The voice was hoarse, husky, and explosive. The movements of the tongue were restricted, the tip scarcely reaching the lips when protruded; it had also undergone some atrophy, although not to such an extent as I have occasionally seen in these cases. The lips, at first slightly swollen and compressible, were now weak and flabby, requiring some effort to keep them closed. During a paroxysm of coughing they flapped like the sails of a boat under an adverse wind. The peculiar appearance of the lower face, that of "unpleasant astonishment," caused by the drooping of the lower lip and deepening of the naso-labial folds, was well illustrated. The pharynx and larynx were in part affected, as manifested by the escape of fluids through the nostrils, foreign bodies, especially food entering the glottis, causing fits of coughing, etc. The disturbance of respiration was very pronounced, consisting of dyspnea and difficulty in coughing. Singultus had never been present. No paresis of the upper face-muscles or of the eye-muscles could be proved, nor disturbances of the motor or sensory branches of the trigeminus nerves. The atrophy of the muscles of the shoulder, arm, and hand was complete, rendering the upper extremities absolutely helpless. Fibrillary contractions were well marked in the affected muscles, and contractures implicating the elbow, the

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wrist, and the hand-joints had made their appearence. The superficial and deep reflexes, likewise the tendon-reflexes, were greatly exaggerated. Sensory disturbances of all kinds were absent. The muscles of the lower extremities were less atrophied than those of the upper, but were equally powerless. The rectal and vesical reflexes were intact.

Urinary examination showed nothing abnormal; examination of the blood showed a great diminution in the quantity of hemoglobin. The heart's action was feeble, but regular and uniform. The greatest distress seemed to come from the respiratory organs; a bronchitis, having developed within the preceding week, occasioned great annoyance, provoking fits of coughing and consequent general prostration.

On the morning of February 26, 1895, the patient was able to sit in a chair for a short time, complaining of great dyspnea and difficulty of raising mucus, but was otherwise in his usual condition. At noon of the same day respiratory failure supervened, and death ensued without any great struggle.

An autopsy was not permitted.

The case is worthy of publication for several reasons, even if amyotrophic lateral sclerosis were a common instead of a very uncommon affection. In my hospital-practice and private practice I have seen but two such cases in Buffalo, in a period of five years; one in consultation with Dr. Pohl, occurring in a man thirty-eight years of age, who presented a typical picture of this disease, enabling a positive diagnosis to be made from the very beginning.

The case just reported assumed for a period of six months the syndrome of paralysis agitans without tremor. The age of the patient, his gait and posture, the muscular rigidity, and the variability of the reflexes, all pointed to Parkinson's disease, and, although lacking the tremor, I did not hesitate to call it such. The beginning atrophy with exaggeration of all the reflexes, together with the symptoms of medullary disease, convinced me of the fallacy of my first diagnosis, and made the final diagnosis more positive with each succeeding day.

Charcot's disease occurring in a man sixty-eight years of age is a very rare occurrence, and in a cursory examination of the literature on this disease I find no case reported in an individual of such an advanced age. As a rule, amyotrophic lateral sclerosis makes its appearance between the thirtieth and forty-fifth years, and runs a course covering a period of from two to five years, death supervening as the result of medullary involvement.

The etiology of the disease, like that of many of the system-affections of the spinal cord, is still *sub judice*, and nothing occurring in the course of the disease of the patient can add anything to solve this perplexing question. Syphilis, alcoholism, excesses, heredity, spinal injury, all were absent, and the only factor that may have had some influence, if a cause must be found, was the rheumatic tendency of the patient, and to this I cannot subscribe.

At the present time there is a movement, as yet incipient, to class all forms of muscular atrophy under one head, and especially to ignore the autonomy of amyotrophic lateral sclerosis. In formulating a classification, the course and duration of a disease should be given as much weight if not more than the symptomatology. It would be folly to insist that the Duchenne-Aran type, or the Erb type, of muscular atrophy is essentially the same disease as amyotrophic lateral sclerosis, even if the symptomatology were exactly alike. The fact that the former runs a course covering many years, terminating through some superadded affection, generally acute, while the latter always terminates through bulbar encroachment, after a lapse of a few years, is sufficient proof of their complete pathologic dissimilarity.

## A REMARKABLE CASE OF THEAISM.

BY JAMES WOOD, M.D.,
OF BROOKLYN, N. Y.

DURING investigations lately carried on to determine the existence of a tea-drinking habit, its frequency and the effects of the constituents of the tea-leaf upon the human body, a very remarkable case was encountered. I had become accustomed to meeting individuals who drank from ten to fifteen pints as their daily amount, but when the case to be reported presented itself it was thought rare enough to report.

Case 306 was a tall blond, twenty-six years of age, who had come to this country from Ireland when quite a young girl. She was married in her eighteenth year to a strong, burly man, much addicted to the use of alcoholic beverages. One year after marriage their first child was born, and from this time she commenced to use tea. Why she should have begun at this particular time she could not explain. At first she said the amount was very small, but the quantity necessary has grown greater and greater. In all, four children have been born to her, and while nursing them she has always kept a quart-pitcher of tea by her side from which she frequently regaled herself. She said that she had become more irritable and cross every year, and found it harder to content herself with her husband and his drinking-habits, and that in consequence domestic infelicities had increased in number yearly. She had also found that tea would take the place of food, and when not particularly hungry, or too busy to prepare meals, she had recourse to the teacup with complete satisfaction.

This is briefly the history of the patient when she presented herself for treatment for, as she said, nervousness and sleeplessness.

At the time of her first visit she had paroxysms of what she termed "cruel and fierce" headaches, either temporal, frontal, occipital, or general, persistant neuralgia of the face and neck, and dull, heavy pains in the lumbar region. She had also attacks of vertigo, mental disquietude and confusion, and was conscious of increasing forgetfulness. After these attacks she would have periods of despondency, alternating with great anxiety, a feeling of impending accident and death, either to herself or children. There would be times when her sleep was restless and troubled; nightmares and dreams were frequent; after which there would ensue insomnia, at times complete, and of several nights' duration. She was very nervous, easily startled, and very prone to be hysterical. The hallucinations usually met with in cases of tea-intoxication were also present in her case. She had at times an almost irresistible desire to look around

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or under the bed, because she imagined that some one was in the room. She said that when she stopped to think she "knew it was not so, but that she *must* look and see." When walking on the street there seemed to be shadows on the sidewalk beside her, as if made by some huge animal.

This is a brief detail of the most prominent nervous symptoms so-called. Her bowels were very much constipated, several days elapsing without an evacuation. She had no appetite, was subject to attacks of severe cardiac palpitation, and complained of a sinking sensation at the pit of the stomach. Her menses occurred every three weeks and lasted about eight days, and at this time all of the symptoms were much aggravated.

The amount of the infusion of the tea-leaf drunk by this woman is astonishing, and the case is for this reason by far the most remarkable one in a large collection of tea-inebriates.

When asked how much tea she drank a day, she hesitated, and then said, "Oh, I drink about thirty cups a day." After closer questioning by both my associate, Dr. Alexander C. Howe, and myself, she confessed that she drank five cups before and five at breakfast, but did not know how many during the day, because she drank from a pitcher or bowl, as drinking from a cup was too slow a process and unsatisfactory. She said that her husband, who did not use tea, would let her buy only two pounds a week. From this she could make about seven "pots" of tea per day. The teapot, she explained, had a capacity of two quarts.

Here, then, is a woman who drank on an average twenty-eight pints of the infusion of tea every twenty-four hours, and who said that she could have drunk more had not her husband prohibited such an extravagance. From the history and from her own story the reason for drinking tea in this large amount lay solely in its stimulating effects. From a study of the physiologic action [1] of thein and the essential oil on the system, this is not surprising, nor could a better and at the same time more pernicious non-alcoholic agent be found in common use.

## HOSPITAL NOTE.

### *FRACTURE AT THE BASE OF THE SKULL.*

BY ROSWELL PARK, A.M., M.D.,
PROFESSOR OF SURGERY IN THE MEDICAL DEPARTMENT OF THE UNIVERSITY OF BUFFALO.

(*Clinic at the Buffalo General Hospital.*)

THE patient who is to be brought before you is a young man who fell on the ice three days ago, striking on the back of his head. Dr. Appell saw him on the ground, and noted a profuse hemorrhage from the left ear. The doctor douched the ear freely with an antiseptic solution, and then made aseptic occlusion of the auditory canal. The patient complained of nausea, and tried to control it till a basin that he called for could be procured. I mention this apparently trivial incident to show that he was conscious after the injury. There was also bleeding from the nostrils, which are now plugged with iodoform-gauze. Early this morning he had a slight headache, but he has none now. He feels like sitting up, but of course this would not be advisable. There is still hemorrhage from the left ear.

The question to be considered involves at once both diagnosis and prognosis as the latter depends largely on the former. Ordinarily, when we have a history of injury, especially of the back of the head, with bleeding from the ears or nostrils, the diagnosis is of fracture at the base of the skull. Nose-bleed may come from a much less serious injury, but bleeding from the ear usually indicates quite serious mischief, though not necessarily fracture at the base of the skull. It is conceivable that the hemorrhage may come from the middle ear or from a rupture of the artery of the drum, on the same principle that rupture of a little vessel in the nose may cause epistaxis. The only reason for deciding against fracture at the base of the skull is that the man feels so well, and that he has no elevation of temperature. But the time for the development of serious symptoms is not yet past. There are many symptoms that are considered characteristic of fracture at the base of the skull that are lacking here, though their absence is no reason for excluding such an injury. There is no protrusion of the eyes, no ecchymosis of the lids, no subconjunctival ecchymosis indicating hemorrhage into the orbit. It is quite possible that these symptoms may develop in the next day or two, and, in that case, there would be positive reasons for favoring the diagnosis of fracture. There was certainly concussion of the brain, and, probably, contusion, as shown by the vomiting.

The prognosis is good. There is no positive evidence of fracture at the base of the skull, and even if that condition exists, not every case is fatal. The symptom to be most carefully watched is the temperature, and this will be noted three times a day. If it rises we shall be apprehensive that our diagnosis, and, therefore, our prognosis, must be revised. In case the temperature should rise antiphlogistic measures would be indicated. We may apply an ice-cap to the head; in many instances leeches have proved life-saving, and I shall direct that if his temperature rises leeches be applied behind the ears. At present we shall simply maintain asepsis about the ears and nose. The danger to guard against is the travelling of infection from the passages outside the cranium into the cranial cavity. If the hemorrhage from the ear is due to a crack of the petrous portion of the temporal bone you can readily comprehend that the same crack may admit germs from without. Even if the fissure and the middle ear are filled with blood-clot, there is ample opportunity for infection of the clot through the Eustachian canal, even if the membrane of the drum be not broken. Bacterial growth may begin in the blood-clot within an hour after the injury, and, after the clot has been broken down by the germs, the same activity may extend to the layer of blood-clot in the fissured bone, and then it is but a step to the formation of a septic embolus in one of the sinuses, and septic sinus-phlebitis results. On account of the prompt application of the proper antiseptic measures in this case I do not apprehend such a succession of events, but you can readily understand what might have happened had not the attending physician acted as promptly as he did, and if, in spite of his excellent treatment, there had been bacteria in the middle ear or Eustachian canal,

[1] American Medico-Surgical Bulletin, September 1, 1894.

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which could not have been prevented from developing. Aseptic occlusion of the nasal passages, which we are trying to carry out, cannot be made absolute, because of the contamination of the air through the mouth, but, realizing this fact, we are wise to make an effort in the right direction.

There is another phase of this case to be considered. How is it that a man may have a fracture at the base of the skull and yet be in as good general condition as this patient seems to be? The serious nature of these cases is not due to the crack in the skull. There is no reason why that should be more serious than a similar injury to another bone. The real trouble lies in the danger of injury to and infection of the brain and its membranes. The brain here is evidently not severely injured. So long as there is no marked alteration in the anatomic relations to cause pressure on some part of the brain, and so long as pyogenic germs do not enter, the injury is of comparatively minor importance.

## TOXICOLOGIC NOTE.

### *TOXIC EFFECTS OF TRIKRESOL.*

BY CLARENCE O. AREY, C.E., M.D.,
PATHOLOGICAL LABORATORY, WESTERN RESERVE UNIVERSITY, CLEVELAND, OHIO.

DURING some experiments made recently in the laboratory with a flask of toxin of the diphtheria-bacillus I obtained some results that at first seemed strange, but that were afterward explained as being caused by the action of the trikresol contained in the solution. This special flask of toxin was the one mentioned in THE MEDICAL NEWS of July 6, 1895, p. 20, which, for some reason, had decreased in its powers. In ascertaining this reduction in this direction enormous doses, ranging from 10 to 13 c.cm. of the toxin were given. The symptoms resulting were identical in all cases, with very unimportant exceptions.

Three guinea-pigs were injected with this diphtheria-toxin containing 0.5 per cent. of trikresol, and a fourth guinea-pig was injected with a solution of the same strength of trikresol in distilled water. The doses given and the weights of the guinea-pigs were as follows:

The first guinea-pig experimented upon weighed 373 grams and received 11 c.cm. of the toxin mentioned. The second pig weighed 377 grams and received 12.5 c.cm. of the toxin. The third pig weighed 406 grams and received 12 c.cm. of the toxin. The fourth pig weighed 343 grams and received 12.5 c.cm. of a 0.5 per cent. aqueous solution of trikresol. These figures give an average weight of 375 grams and an average dose of 12 c.cm. of the solution, or 0.06 grams of trikresol itself; equivalent to 0.16 grams of trikresol per kilogram of body-weight. This would be equivalent to giving a man of 150 pounds avoirdupois about 150 minims of pure trikresol in aqueous solution. The solutions were in all four cases administered hypodermically.

The symptoms resulting from the injections were as follows:

Within the first three minutes after the injection the animal commenced to tremble. This trembling was accompanied by a peculiar rhythmic motion, commencing at the head and running down to the hind feet, starting very much like the jerk of a hiccough. Putting the hand on the left side of the chest at the same time the heart was felt to have a fluttering motion, in time with the trembling and rhythmic jerk.

About five minutes after the injection the animal commenced to lose control of the hind legs, and a few moments later complete paralysis of these extremities developed. In from one to ten minutes after this the animal commenced to lose control of the front legs, but these extremities were much slower in reaching the stage of complete paralysis. While passing into this stage, however, the animal kept drawing them forward, with a slow swimming motion, in a vain endeavor to regain his feet. At the same time the animal's chin kept dropping lower and lower, till, as he lost entire control of the front extremities, the head rested limply upon the table. This stage occupied about ten minutes, during which time the rhythmic tremors were becoming more severe. Picking the animal up at this stage, the whole body was pertectly limp and flaccid. The animal now lay upon the table in very much the position that the hunter stretches the skin of a small animal on the wall to dry, and remained in this stage for ten or fifteen minutes, when a slight diminution in the severity of the tremor could be noticed. This became less and less severe, till about forty-five minutes after the injection the animal tried to regain his feet, which he succeeded in doing a few minutes later, the tremor still continuing, although slighter. At the end of an hour the tremor was almost imperceptible, and putting the animal into his cage he commenced to eat. No after-effects were noticed.

These experiments would tend to show that trikresol is a very safe antiseptic, as no such quantities as were employed here would ever be introduced into the body in the proportions that are used in antiseptic mixtures.

## NEW DEVICE.

### *A NEW PHIMOSIS-HOOK.*

BY G. NATANSON, M.D.,
OF BROWNSVILLE, TEXAS.

IN performing the operation of circumcision, as is well known, the *lamina interna* or *mucosa* of the prepuce must be fixed and put on the stretch, together with the integumental parts, before the foreskin is cut. Among the various instruments used for this purpose the most ingenious and most serviceable are the phimosis-forceps of Levy and of Girdner, the illustrations of which are given in Tiemann's *Armamentarium Chirurgicum* of 1889, pp. 336 and 337, and in some other catalogues of surgical instruments. But these two forceps are not conveniently used together with the glans-guard, as, for instance, the Knox phimosis-clamp or forceps. While the screw of Levy's and the spring of Girdner's forceps tend to separate the opposite parts of the prepuce, the tendency of the guard is to bring them together. Besides, the strong spring of Girdner's forceps may easily rupture the often very delicate prepuce of infants, as, for instance, in cases of ritual circumcision, if not used with great caution, which cannot be expected of every untrained assistant holding the forceps. The serrated surface of Levy's forceps may sometimes not safely enough fix the mucous membrane.

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An instrument that I have devised for the purpose in question consists of two double-hooked tenacula, each about four inches long, the lower part of the tenacula being grooved. In the groove passes a slide, ending in a very small cylinder with two notches on its surface. When the slide is lowered (pushed down) the cylinder comes in contact with the hooks, which fit completely into the notches, as is clearly shown in the illustration. The cylinder (C in Fig. B) is about two millimeters high and one-and-a-half millimeters in diameter. The hooks thus being hidden in the notches, the peripheral end of the instrument can be easily introduced into the

FIG. B.

C

FIG. A.

preputial cavity as deeply as desired and moved around, as may sometimes be required for breaking up adhesions, without fear of doing harm to the glans.

After introducing into the preputial cavity the guarded hooks, which I place to the right and left of the glans, the slide is removed and the hooks come in contact with the mucous membrane. Slight pressure is then sufficient to push them through both layers of the prepuce, which are thus put on the stretch simultaneously. The guard is then applied and the operation performed in the usual manner. The same guarded hooks can be easily brought under the remaining portion of the mucous membrane and fix it well enough to facilitate the removal of this portion by the scissors. The instrument is made according to my design by Messrs. Geo. Tiemann & Co., of New York.

## MEDICAL PROGRESS.

***Perforation of the Bowel by a Fish-bone, with the Formation of an Intra-abdominal Abscess.***—MAYLARD (*Glasgow Medical Journal*, vol. xliii, No. 5, p. 350) has reported the case of a tuberculous patient, thirty-four years old, who presented a rounded tumor in the right inguinal region, on a level with the anterior superior spine of the ilium, about two-and-three-quarters inches to the right of the median line. This was tender on pressure, of firm consistence, and could be outlined by palpation, and over it the skin was freely movable. The swelling gradually increased, both in size and tenderness. There was little or no elevation of temperature. There was some tendency to looseness of the bowels. The case was believed to be one of appendicitis with suppuration, and a vertical incision was made over the spot where fluctuation was suspected. About half an ounce of thick, creamy pus escaped, devoid of fecal odor. The forefinger was introduced with the object of opening up what was believed to be a large abscess-cavity situated deeply. As, despite the utmost care, the adhesions surrounding the abscess-cavity were broken through and a communication with the peritoneal cavity established, the incision was enlarged with the view of removing the appendix and thoroughly washing out the peritoneal cavity. The abdominal wall was enormously thickened, in one place measuring three inches. The appendix was discovered at the lower part, being perfectly free and normal. The floor of the abscess was formed by a ragged, thickened mass of tissue on the surface of the colon externally, and a coil of small intestine internally, which were intimately united together. During the manipulations a small fragment of bone was discovered lying loose. The abdominal cavity was irrigated and the wound stitched up, except the lower part, where a drainage-tube was inserted. The foreign body was about three-quarters of an inch long, and had all the appearances of a fish-bone, and on microscopic examination presented numerous well-marked lacunæ and Haversian canals.

***Successful Celiotomy in a Child of Sixteen Months with Appendicectomy.***—HAUCK (*Medical Review*, June 15, 1895, p. 463) has reported the case of a girl, sixteen months old, still nursing, who, after the ingestion of a small piece of banana and a little meat during the day, was seized at night with vomiting, which continued at short intervals. There was no diarrhea, but the intestinal evacuations contained mucus and blood. On examination of the abdomen a tumor, of the size and shape of a small lemon, was found immediately below the ribs and to the right of the median line. The patient was pale and somnolent; the pulse feeble and rapid; the hands and feet cool; the head warm; and the vomiting had become stercoraceous. A diagnosis of obstruction of the bowel, probably due to intussusception, was made, and operation advised and consented to. Through a median incision, two inches long, from the umbilicus downward, a finger was introduced, and a tumor felt encircled by a coil of intestine. During the manipulation the strangulation was relieved, and the cecum slipped out through the wound. This part of the bowel and the ascending colon were much congested and thickened by edema, the vermiform appendix being as thick as the little finger and ecchymosed. The last was, therefore, removed, the cut edge being inverted by means of three fine silk sutures, and the opening closed completely. The bowel was returned, and the abdominal wound approximated with a line of buried sutures, two deep and two superficial, and appropriate dressings applied. The child reacted well from the operation, and was soon on its way to permanent recovery. The bowels were moved a day after the operation by means of a glycerol-suppository, followed by three one-eighth-grain doses of calomel, given every two hours.

***Spontaneous Laceration of the Stomach.***—BRAYN and RIDLEY (*British Medical Journal*, No. 1795, p. 1145) have reported the case of a strong, well-nourished woman, thirty-seven years old, who after dinner vomited a small quantity of blood, rapidly became unconscious, and died in about half-an-hour. Upon post-mortem examination the abdominal cavity was found to contain ten ounces of bloody serum, the stomach was much distended, and on the anterior wall at the cardiac extremity was a distinct rent, about one quarter of an inch long, through the serous coat only. The direction of the laceration was downward and to the right. The interior of the organ was filled with coagulated blood, which when broken up was found to contain pieces of imperfectly masticated meat and other material which ap-

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peared to be bread. The mucous membrane was free from signs of disease and appeared perfectly healthy, only a slight redness, such as normally exists during digestion, being apparent. The walls of the stomach were thick and strong, and displayed no appearances of degeneration or softening. The diaphragm and muscular walls of the abdomen were also very strong and well-developed, and the remainder of the abdominal, as well as the thoracic organs were normal. The rupture of the stomach is attributed to violent contraction of the viscus upon a mass of undigested food, accelerated by the action of a strongly developed diaphragm and abdominal muscles.

*A Case of Severe and Persistent Hiccough.*—WIGHTMAN (*Lancet*, No. 3744, p. 1364) has reported the case of a man, fifty-eight years old, who had been having hiccough for forty-eight hours. He was a total abstainer, but was in the habit of drinking much tea. He had smoked half an ounce of tobacco daily for a number of years, and was a very small eater. Chloral and bromid were prescribed at bedtime, but after five hours' sleep the hiccough recommenced. Pressure over the region of the phrenic nerves, at the lower and front part of the neck, controlled the spasm for a short time. Larger doses of chloral and bromid were followed by a quiet night, but the hiccough was worse in the morning. The contractions of the diaphragm were violent and frequent, often one hiccough being represented by five or six consecutive contractions. The hiccough occurred eight or ten times in a minute, sometimes more frequently. A blister three inches square was applied over the region of the diaphragm in front, as well as ice to the nape of the neck and spine. Despite active and assiduous treatment with various drugs, including camphor, belladonna, zinc sulphate, morphin, valerian, and amyl nitrite, the hiccough continued with varying severity for twelve days, and for a time pronounced nervous symptoms were present.

## THERAPEUTIC NOTES.

*The Treatment of Fetid Expectoration with the Vapor of Coal-tar Creosote.*—CHAPLIN (*British Medical Journal*, No. 1799, p. 1371), observing the freedom from pulmonary affections enjoyed by those employed in the manufacture of coal-tar creosote, was led to employ this substance in the treatment of various conditions attended with fetid expectoration. For this purpose he utilized a small chamber about seven feet square by eight feet high, made as air-tight as possible, and in the center of which on a pedestal was placed a spirit-lamp, and over this a flat, open dish into which was poured the creosote. When the lamp was lighted the room soon became filled with the characteristic pungent fumes. The patient sat in the chamber and inhaled the vapor, at first with only a gentle heat applied. As time went on, however, the patient was able to stand the inhalation with impunity. To obviate the irritating and smarting effects of the vapor upon eyes and nose, the former were covered with watch-glasses fixed with adhesive plaster, and the latter was plugged with cotton-wool. A towel pinned over the head and a loose dressing-gown protected the hair and clothing from the odor of the creosote. The first inhalation lasted a half-hour; the latter an hour or an hour-and-a-half. The treatment was repeated daily, and the course lasted from six to twelve weeks. Altogether six cases were thus treated, a seventh being still under observation. Expectoration was facilitated, the quantity at first increasing, but later diminishing and the offensiveness disappearing. Breathing became easier, and the general condition distinctly improved.

*The Treatment of Morphin-poisoning with Potassium Permanganate.*—HUMPHREYS (*New Orleans Medical and Surgical Journal*, June, 1895, p. 861) has reported the case of a negress, eleven years old, whose mother had given her a No. 2 capsule packed full of morphin, thinking it was quinin. By comparison with a similar capsule the amount taken was estimated at six grains. When seen five hours later the child was collapsed, lying perfectly motionless, with the pupils tightly contracted, the respirations 4 to the minute and sighing, and the pulse hard, full, regular, and 138 to the minute. The girl could not be aroused. Hot water with mustard and other domestic emetics had already been given, but without avail; and also copious drafts of coffee. Strychnin sulphate (gr. $\frac{1}{30}$) and atropin sulphate (gr. $\frac{1}{60}$) were injected beneath the skin, and as soon thereafter as it could be prepared 2½ grains of potassium permanganate were given. In the course of an hour the permanganate was repeated, and in a short while the patient opened her eyes and turned over voluntarily. The respirations had increased to 12 and the pulse had fallen to 110. After the lapse of another hour permanganate was again injected, and gave rise to considerable pain. Soon afterward the child arose from bed and walked across the room to get some water. The improvement thus continued, another dose each of strychnin and atropin and potassium permanganate being given. Ultimate recovery was perfect.

*In the Treatment of Lichen Urticatus*, NEEBE (*Monatshefte für praktische Dermatologie*, B. xx, No. 12, p. 672) points out that two indications are to be met: (1) relief of the itching; (2) improvement in the general condition and treatment of the associated rachitis. For the itching a 2 per cent. ointment of betanaphthol may be employed, vigorously applied for ten minutes. The general treatment includes principally the correction of digestive disorders. Laxatives, as calomel or tincture of rhubarb, may be given and the diet restricted to simple soups, bouillon, and wheaten bread. Ordinary diet may be resumed after the stools have lost their offensive odor. Internally for the itching the following formula is useful:

℞.—Antipyrin . . . . . ʒss.
Syrup of orange-peel } āā . . fʒj.—M.
Distilled water }

Sig.—One or two teaspoonfuls are to be given at night.

For the rachitis the following may be employed:

℞.—Phosphorus . . . . gr. $\frac{1}{10}$.
Cod-liver oil . . . . fʒj.—M.

Sig.—A teasponful is to be taken once or twice a day.

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## COMPETITION AND MEDICAL ETHICS.

WE publish to-day a letter from a valued correspondent to which we are earnestly requested to reply. We do so somewhat reluctantly, because we shall be compelled to leave untouched a number of what we deem errors on the part of our correspondent, and because these discussions are of little use in convincing anybody. Moreover, all such questions almost inevitably and finally narrow themselves down to personalities, the sum and substance of them being: "How much personal honor and sense of self-respect have you, or how much will you sacrifice honor to money-getting and success-gaining? We shall, therefore, warn intending correspondents that we cannot give our space to further letters upon the subject.

If we apprehend our correspondent correctly he criticises or would abrogate the Code of Ethics:

1. Because some men, many men, break it.

2. Because the breakers are not, and cannot be, punished.

3. Because competitton must, he so intimates, make all physicians breakers.

1. Now as to the first point, we cannot see that any rule of social life, of ethics, of business, or of religion, is, *per se*, the worse, or to be criticised, or to be abrogated, because broken every day by individuals, few or many. The question lies behind the sad fact of the breakages, and consists in the fact of the rightness or unrightness of the rule. Does our correspondent think the spirit and injunctions of the Code good? He says he is an "admirer of the Code." Is it the less admirable because many men break it? This assertion of admiration of the Code, coupled with continual carping at it, instead of at its breakers, betrays, at least, a very strabismic "admiration" and a very suspicious allegiance. Would it be well for the profession and for society if the provisions of the Code were obeyed by all physicians? In so far as these injunctions are disregarded and broken, are not both profession and the public the worse, and the worse off? In so far as a physician is a gentleman will he not act from the same spirit as that which inspired the writing of the Code, even if he never read a word or never even heard of that document? We have many times said that the only argument the Code-smashers have is the fact that so many physicians break it, but what asinarian logic is that! This whole argument seems designed finally to end in a resolve of the few sane in a world of fools—they who have escaped wetting by the fool's rain, to hunt up a puddle of the rain-water, plunge in and be happy—happy in a uniformity of foolishness with their grinning fellows. Down comes the question to one of personality: Do you prefer to be among the breakers or among the law-abiding—if you press it—among gentlemen?

2. Punished? The question betrays the sorry confession that, to the correspondent's mind, there is no genuine punishment except an objective one. But except a subjective one there is no punishment for any lapse from the higher ideals of justice, kindness, and honor. So far as one can see, progress in civilization consists in progress in character-building, in the establishing of sentiments within the individual breast, the abuse of which can be "punished" only by one's own conscience and sense of degradation. If one has not such sentiments and character, he may be happy in his life, and happy in choosing as his companions those that are like-minded, but he will find that others are different-minded and that they will choose different companions. And this, we suppose, includes the idea of punishment of our correspondent, the criticism that medical societies do not exclude the Code-breakers—the majority of the members of which are sometimes even breakers.

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Supposing it to be so, does that supply sufficient reason for not preserving one's own self-respect? Would it not be better to work for the execution of the Code rather than for its abrogation? Supposing the Code were abolished, what earthly difference could it make in the facts? Gentlemanliness would still remain admirable, and all the Code-smashers would only make it more admirable, whilst one would still be compelled to choose his friends, or would be chosen by them, then just as now. When the medical societies and associations become so degraded that a majority of their members, individually and officially, habitually disregard those ordinary principles of kindness, honor, courtesy, and good breeding, upon which the poor Code is founded, then so much the worse, and gentlemen will not wish to be members—just as many men already do not care a button for membership in some medical societies. Down to a personality again comes the discussion: Do you prefer to be of the breakers or of the practisers of ethical conduct? If of the latter class you certainly cannot care whether there is a Code or not; you will obey it whether objectively the rule of societies, or whether smashed to smithereens by all societies. As to "punishment," we have no sort of doubt that the supposed breaking of the Code will sooner or later be found to be only a breaking of the breaker. As the Code prescribes nothing but simple common courtesy, benevolence, and self-respect, the Code will remain quite unbroken though the whole world deludes itself into the belief that it breaks it.

3. Competition will certainly make all those physicians breakers of the Code who find no inner reason for not breaking it. But the fundamental question lying behind this, and, indeed, behind all three criticisms, is: Does it pay to break? And this question, of course, is followed by the counter-query: What do you consider "pay?" That would involve a sermon on the value of money and success; on the idiotic overvaluation of both by the little-souled and the mean-minded. If you think them worth the price some pay for them, for Heaven's sake buy, or beg, or steal them. Sensible men know better, and nothing but bitter experience will teach you better. If you think that at the end of your life you will, by breaking, be more honored by your fellow-men, more satisfied with your life-work, that you will leave the world better for your life of breaking, then look a bit to your logic—we think you deceive yourself—but if you conclude so, then, by all odds, go ahead at the breaking business. But if it be said that despite average ability, proper education, and due diligence, one cannot, while obeying the spirit and even the letter of "the Code," make a comfortable living, and raise one's family decently and honorably, then, fortified with the testimony of thousands of lives so lived, we can only say, *It is a lie!*

As to our correspondent's division of life and character into hard-and-fast compartments and divisions, with no interactions and influences—this labelled medical practice, another ethics, that law, the other religion—well, this is simply poor and wearisome nonsense. Ethics, principles, honor, religion, if a man actively have these qualities, are not "totally different things;" they are only multiple phases of one indivisible psychic reality; each interpenetrates and influences the other, and from them, as a composite whole, spring the motives that incite and the methods that realize all conduct.

## EDITORIAL COMMENTS.

***Accidents Due to Railroad and Trolley.***—Chicago has been called the "most blood-guilty city on earth," because of the great number of lives annually lost through railroad-accidents. The Chicago Commissioner of Health reports, in 1894, 354 deaths from this cause, and he blames the "grade-crossings" for the mortality. In Philadelphia the number of deaths from railroad-accidents recorded by the Coroner in the year 1894 was 236; in 1893 it was 216; and in 1892, 208. For the six months ending July 1, 1895, 106 cases are reported. In Chicago nearly 50 additional fatal railroad-accidents were not recorded as such, but were returned to the Board of Health under the head of "fracture of the spine," "surgical shock," etc.

Of the 354 fatal accidents occurring in Chicago, about 45 were from street-cars, and the balance from steam-railroads. Of the 236 deaths in Philadelphia in 1894, 67 were from street-cars; and for the six months of 1895, 55 deaths on the Coroner's books are charged to the street-railways, including the trolleys. Many of the cases investigated by the Coroner occur among the employés of the road, and are included in these statistics. The city of Brooklyn has but 70 deaths from railroad-accidents recorded on its Coroner's books for the year 1894, and yet during the late railroad-strike in that city its surface trolley-companies were accused of great recklessness and gross disregard for human life, and the Coroner's clerk in a letter to us has limited his figures to the *records* in *his* office.

Chicago has 3000 streets crossed at grade by steam-cars. In Philadelphia we have not quite so many grade-crossings, and yet several hundred more than we ought to have. The trolleys have added a considerable number of deaths to the mortality-list, but the grade-crossings continue to furnish the greater number. While the trolley is deadly on the one hand, it is on the

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other hand a therapeutic agency of no little value, and must exercise a beneficial influence upon the life and health of the community. What was formerly only possible to the wealthy, namely, a ride into country, can now be indulged in by the poorest inhabitant—and what can be more health-giving, after the hard work of a hot day, than a long ride in an open car out into the surrounding country? The young people have trolley-excursions instead of dancing-parties. The children of the poor districts are taken on an airing instead of sweltering in hot rooms, and thousands are benefitted that never were before.

While we bemoan every unnecessary death, and believe that every precaution should be taken by the railroad-companies to prevent accidents, yet we feel that the newspapers are more interested in the sensation created by their records of trolley-deaths than in the real welfare of the people. If they would as faithfully and as graphically record each death from diphtheria, or typhoid fever, or tuberculosis, deaths as clearly preventable as trolley-deaths, and due largely to neglect on the part of both the individual and the community, they would do a good that would be wider-reaching and that would aid in materially lessening the mortality-rate of our city.

***Deaths Among Medical Men.***—In the June number of the *Brooklyn Medical Journal* DR. J. L. KORTRIGHT writes of the causes of death among medical men, basing his conclusions on the record of deaths of 450 physicians occurring in the cities of New York and Brooklyn during the years 1884–1892. He found the average age at death to be 54.6 years. This is rather a high average, although compared with that of Presbyterian ministers (sixty-nine years) it is quite low. Clergymen have always had a greater longevity than most other people, while doctors are ranked with brewers, saloon-keepers, and butchers.

Three per cent. of the deaths were from suicide—a ratio somewhat higher than is found in the population generally, but not so great as Dr. Kortright states, as he has reckoned on the entire male population, whereas he should have considered only males between the ages of twenty-one and sixty-five.

The diseases connected with sclerotic changes in the arteries, namely, those of the heart and kidneys, and which Dr. Kortright groups under the term "arterial sclerosis," caused 35 per cent. of the deaths, and he therefore terms this group the "doctor's disease." No attempt is made to show whether or not medical men are more liable to die from such diseases than other professional men, yet the warnings given are timely and worth heeding: "When you find your arterial tension increasing, your temporal artery becoming tortuous, your radial hardening, . . . . know that old age is upon you, curb your ambition. Be content with a small practice. Reduce your expenses. Give up your night-work. Decline confinements. Take a long vacation in summer." How many physicians who enjoy a fair competence persist in doing work that overtaxes them and which they could readily assign to others. If the doctor does not care about his own health, he owes it to his patients that he should not overwork himself. Can a medical man do honest work when after attending a confinement at night he visits his outside cases in the morning, returns at 2 o'clock, takes a hurried lunch, and treats office-patients until 5 or 6 o'clock and has another batch from 7 to 9, with perhaps an hour of hospital-work and an hour of teaching fitted in somewhere durthe day. This picture is taken from real life. Such a man can afford to decline confinements, need not have evening office-hours, and ought not to do charity-work in hospitals.

Medical teaching will some day, we hope, be a specialty in itself, just as teaching in other departments of knowledge already is. A teacher cannot do his duty to his pupils and at the same time attend to a large practice and hospital-work besides. As his work increases the physician should confine himself more and more to special cases and allow his assistants and younger colleagues to assume some share of the burden. He should mingle more with the world around him, with his family, and even take a part in the affairs of State. Why should not the teachers and wardens of health show the world by their own lives how to live. Doctors owe it to themselves and to the community to use every means to reduce their own mortality-rate.

***Report of the Department of Health of Chicago.***—A very interesting and valuable report is the one just issued by the Department of Health of the City of Chicago for the year ending December 31, 1894. The growth of these departments in large cities and the variety of duties assumed render this work important, especially if recorded in a scientific manner. The Commissioner of Health, Dr. Arthur R. Reynolds, gives a summary of the work in the first thirty-six pages, and then follow two papers, one on "The Water-Supply of Chicago" and the other on "Needed Sanitary Legislation."

The tables of deaths are very complete and present some new and valuable features. Twelve per cent. of all the deaths reported took place in hospitals and other public institutions. The total death-rate of the city was 15.24 per 1000—the lowest death-rate, be it observed, of any city in the world with a population over 200,000. The other lake-cities, Detroit, Milwaukee, Cleveland, and Buffalo follow Chicago very closely, and the commissioner suggests the influence of the Great Lakes as being important in this connection.

The work during the smallpox epidemic, according to the report, was enormous. The returns showed that 59 per cent. of the persons attacked were unvaccinated; that nearly 30 per cent. of the school-population required vaccination. Over 1,000,000 free vaccinations were performed in a few months.

The increase and decrease in diseases is graphically shown, and the period covered is long enough to draw conclusions from it. Carcinoma has increased greatly, both in relation to the population and to the number of deaths from other causes. From 1851 to 1865 the deaths from carcinoma in 10,000 of the population averaged about 0.50, from 1866 to 1890 it increased to 2.80, and from 1881 to 1894 to 3.90. For Philadelphia the rate in the past few years has been over 5 in 10,000 of the population.

Whether carcinoma shall be proved contagious or not, the recommendations of the Commissioner in regard to the disinfection of dressings and discharges are worth heeding.

The other features of the report are all worthy of special study and are very suggestive. Factory-inspec-

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tion and smoke-nuisance inspection are portions of the work of the Health Department of Chicago.

The diseases reported as generally diminishing in the mortality-rate are tuberculosis, croup, diarrhea, diphtheria, dysentery, malarial fevers, measles, puerperal fever, scarlet fever, typhoid fever, and pertussis, while nephritis, bronchitis, carcinoma, cholera infantum, heart diseases, nervous diseases, and pneumonia are increasing.

In Philadelphia typhoid and tuberculosis furnish a decreasing death-rate from year to year, while pneumonia, bronchitis, and diseases of the heart return a higher mortality each year. In this connection it were well if our own department of health, would in its reports, compute the rates on the number of inhabitants, as has been done in the Chicago report.

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***The Influence of Removal of the Ovaries upon the Bodily Metabolism.***—While there are few organs whose function is absolutely essential for the maintenance of life, there is probably none whose functional activity is not without influence upon that of other organs and structures. Of the validity of this proposition we have of late years had an abundance of evidence. Perhaps the most conspicuous illustration is to be found in the thyroid gland, to whose absence or atrophy or disease is attributed the group of diseases comprising myxedema and cretinism and perhaps also exophthalmic goiter. One practical outcome of a recognition of this inter-relation resides in the therapeutic employment of preparations of the thyroid gland of one kind or another. Clinical observation has shown also that the ovaries have a not insignificant influence on the metabolic processes of the body. Thus over and above the changes, psychic and physical, that are at times observed at the menopause, occurring naturally or induced artifically by removal of the ovaries, it has been shown that the rather uncommon disease, osteomalacia, will in many instances yield to the operation of oöphorectomy. An additional contribution to this interesting chemico-physiologic subject has recently been made by CURATULO and TARULLI (*Centralblatt für Gynäkologie*, 1895, No. 21, p. 555), who report the results of a series of observations upon the metabolic changes that follow removal of the ovaries. After having fed dogs with food so adjusted in quantity and quality that a fairly unvarying amount of nitrogen and phosphates was excreted, it was found that after removal of ovaries, the other conditions remaining the same, the amount of phosphates eliminated was diminished considerably for some time, the amount of nitrogen undergoing little change. The inference is drawn that this diminution in the excretion of phosphates is to be attributed to the lessened oxidation of the phosphorus present in the tissues in organic form, and which in combination with earthy bases is in health deposited in the bony structures as calcium and magnesium phosphates. In this way, it is believed, is to be explained the improvement that follows removal of the ovaries in cases of osteomalacia.

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***Misrepresentation of Professional Opinion.***—Some time ago the American Humane Association addressed a circular to a large number of prominent men, teachers, editors, professors, ministers, and physicians as to the advisability of illustrating in the public schools physiologic truths and teachings by vivisection-experiments. A pamphlet of the replies has been published, and among them we find but four from men having the degree of M.D. Of these four three are against the practice of vivisection-experiments before children. Two of these medical men are editors, and the other two are non-practising physicians. One of these latter thus writes:

"I certainly think that children and everyone ought to be familiarized with the sight of blood, the pangs of disease, and the solemn event of dying. Death and pain should not be concealed; they are the greatest of all educators; for they alone teach us the value of life in its highest measure.

"The whole tone of your circular is, in my opinion, contrary to the spirit of true education."

We wish first to protest against these atrocious sentiments *per se*, and secondly against them as at all representative of the opinion of the profession—of the *practising* physician. Any clinical experience with disease, with suffering persons, instils into normal hearts a sentiment that shudders with horror at the thought that "children should be familiarized with the sight of blood, the pangs of disease, and the solemn event of dying." This is simply hideous, and we did not wish to let the opportunity pass without denying that this is medicine or medical opinion. Why did the instigator and editor of this pamphlet not secure the opinions of representative and practising physicians upon this question? Was it the secret desire of antivivisection extremism to stigmatize the medical profession with such a wretched travesty of its genuine feeling?

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***Purulent Parotiditis Due to the Typhoid-bacillus.***—The localization of the bacillus of typhoid fever in the secondary lesions of the disease has been demonstrated in a considerable number of instances. The micro-organisms are naturally not to be looked for in the lesions dependent upon intercurrent affections. Among the rarer complications of typhoid fever is inflammation of the parotid gland. It is possible that in some instances this may arise by invasion through Stensen's duct, while in others it may be due to metastatic deposit of typhoid-bacilli through the circulation. Of the second mode of origin an interesting example has recently been placed on record:

JANOWSKI (*Centralblatt für Bakteriologie und Parasitenkunde*, Band xvii, No. 22, p. 785) has reported a case that presented itself for post-mortem examination with a clinical diagnosis of hemorrhagic nephritis of unknown origin. The patient had been ill for seven weeks with febrile symptoms. During the last week a painful swelling appeared in the region of the right parotid gland, but palpation failed to detect the presence of pus. Upon post-mortem examination the intestinal lesions of a recent attack of typhoid fever were found. On section the right parotid gland was found infiltrated with pus, bacteriologic examination of which disclosed the presence of typhoid-bacilli in pure culture.

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***Gonorrhea Among Convicts.***—Of 230 convicts recently examined in the State of Pennsylvania, 156 acknowl-

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edged having had gonorrhea once or oftener. Of 500 examined in 1894, over 200 confessed to having had an attack of this disease. Of those who denied infection it is probable that many were not telling the truth. While these figures are obtained from a class that it would be expected would be given to debauchery, yet the prevalence of gonorrhea in all classes of life is excessively great—how great it is impossible to learn, though one need not have a very large experience with worldly men to form an opinion. Statistics on this question are badly needed.

***The Bicycle vs. the Horse.***—In many small towns the bicycle has taken the place of the country doctor's buggy. In the western part of Pennsylvania, up to ten years ago, doctors were compelled to make journeys over a considerable distance of territory, but to-day every village has its one or two physicians, and the suburban and interurban trolleys have brought the farmhouse quite near, so that the young doctor settling in a small community will be able to forego the expense of keeping a horse, unless he goes West, where, on account of the bad roads, two and three horses are often required in a small practice.

## REVIEWS.

TRANSACTIONS OF THE ANTISEPTIC CLUB. Reported by ALBERT ABRAMS, a Member of the San Francisco Medical Profession. Illustrated. New York: E. B. Treat, 1895.

ALAS, for the microbe—the real serious microbe—the one that "Dr." Radam kills with his club, when medical men who have been his discoverers, who have elevated him to position and place, begin to make fun of him. Could Columbus have ever regarded America as a joke, or could we conceive of Morse splitting his sides over the electric telegraph? And so one starts at a disadvantage in making fun over serious medical problems, and expecting the serious Doctor to immediately die laughing. Dickens, in "Bob Sawyer," was more of a success than most of his imitators, and now the day of that kind of student has passed, and he is almost paleolithic and unrealizable. The "Antiseptic Club," however, has no designs upon the risibles of students, but aims at producing a series of smiles on cheeks furrowed by thought, and night-bells, and lips compressed with caution, responsibility, and the fear of inhaling germs. And these lips will never curl the right way at a satire of their own peculiar methods or a joke on their pet hobbies; but, after all, it is unsafe to say what men will laugh at. The point we miss may penetrate the anatomy of a brother and elicit a yell, while we sit silent.

One can smile at the straightening of the Leaning Tower of Pisa with "testiculin," or the timid Doctor who resorted secretly to the juice of a lion; or he who became a brilliant extractor of cataract after using extract of cats; or the man who used to be a gentleman till he tried "porcine fluid" and stole cases and rose to eminence. And there is much that is funny in the dissertation on Peyer, "the memory of whose name was confined to the unhallowed intestinal walls," or the celiotomist's method of advertising, and Smith's successful cough-mixture that gave an expectorating cup with each bottle, and a bed-pan with the pills.

But these are not the cream of the book extracted with a separator. Oh, no! The reader must read for himself the *Antiseptic Club* and look at its funny pictures and find his own jokes to laugh at, and grow solemn and silent when his own corns feel a sudden and heavy tread.

DIFFICULT LABOR. A GUIDE TO ITS MANAGEMENT FOR STUDENTS AND PRACTITIONERS. By G. ERNEST HERMAN, M. B. Lond. F.R.C.P. Pages 443, with 162 Illustrations. New York: William Wood & Co., 1894.

DYSTOCIA, unfortunately, is too often to the ordinary practitioner of medicine practically an unknown quantity. As long as Nature decrees a normal sequence of events he prides himself upon his ability as an accoucheur. Let there exist, however, some disturbance of the fundamental principles underlying eutocia, and the self-estimated "skilled" accoucheur rapidly degenerates into a demoralized attendant, absolutely unable to cope with the problem presented. While such a state of things exists such able books as the one under review cannot be too cordially welcomed. The high standing of the author and the excellent quality of his previous work at once insure a respectful and sanguine reception of his later work. As we glance over the subject-matter of the volume we find that, while not arranged in any systematic order, all of the essential conditions giving rise to difficulty at the time of parturition—with possibly one exception—have been ably presented. If placenta prævia be considered worthy of mention as a complication of labor we cannot see why puerperal eclampsia should be denied this honor. The one is as much a portion of dystocia as the other, although neither is exclusively confined to the time of parturition at term, and, in our opinion, both would properly be treated as abnormalities of pregnancy. The chapter on pelvic contraction is excellent and exhaustive, and the illustrations throughout the book are instructive and well selected. The indexing is complete, the type clear, and the text explicit.

THE PHYSICIAN'S GERMAN VADEMECUM. A Manual for Medical Practitioners for Use in the Treatment of German Patients. By DR. RICHARD S. ROSENTHAL. Part 1. Gynecology and Obstetrics.. Pp. 177. Price $2. Part 2. General Practice. Pp. 268. Price $2. Chicago: The Rosenthal Publishing Company.

THIS publication should prove useful to physicians whose work lies to any extent among German-speaking people, and who are not sufficiently grounded in that language to readily learn the facts and clearly give instructions in cases occurring among a not inconsiderable proportion of the population of our large cities. The subject-matter is arranged in questions, which have, as far as possible, been so constructed as to require either *yes* or *no* in answer. While this arrangement is most convenient it has the disadvantage of making the questions "leading." The pronunciation is indicated by the marks in common use, and is satisfactory as far as

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it is possible to thus indicate the sounds of German words. Proper pronunciation in any language is only to be acquired through the sense of hearing. Both the working and the literal meaning of every sentence is given. In addition, rules and examples bearing upon forms of German construction have been introduced, so that the book is not without use for persons even totally unacquainted with the language. The drawback to the practical utility of this work, as of all others of its class, is the difficulty of always at once finding the sentence one wants, or the necessity of memorizing the whole. As an adjunct to the thorough study of German it should, however, find a wider field of usefulness.

TEXT-BOOK AND MANUAL OF PRESCRIPTION-WRITING, with a List of the Official Drugs and Preparations, and also Many of the Newer Remedies Now Frequently Used, with Their Doses. By E.Q. THORNTON, M.D. Ph.G. Pages 334. Philadelphia: W. B. Saunders, 1895. Price, $1.25.

THIS valuable manual fills a special place in medicine, and will be peculiarly of service to the younger men in the profession to whom the art of prescription-writing is still more or less of a mystery. In looking through the book there appear but two objectional features, and even one of these may be queried. While it is perfectly proper to present sample prescriptions for the purpose of teaching, the learning of formulæ for specific purposes cannot be too highly deprecated. We fear that many of those into whose hands this book must fall will, from the multiplicity of the formulæ, be tempted to memorize and ignore the higher object of the author. The graver defect is an inconsistency. While strongly recommending the adoption of the metric system, and while giving rules for the conversion of other systems into this, the author gives all of his formulæ in the system in vogue in this country. We would suggest that in the next edition the French method might be put on an equality with the elder system in the sample formulæ in the book. The tables of solubility, doses, and incompatibility are valuable.

TRANSACTIONS OF THE NEW YORK STATE MEDICAL ASSOCIATION FOR THE YEAR 1894. Vol. xi. Edited for the Association by E. D. FERGUSON, M.D. Published by the Association.

THIS handsome octavo volume of 750 pages, with its valuable and varied contents, is a distinct credit to the body from which it emanates, and bespeaks the high scientific character of the Society's membership. It would be difficult and perhaps invidious, even were there space, to select from among the forty-five communications that principally constitute the *Transactions* any for special comment or criticism. In scanning the pages of the volume we have, however, been struck by the following, which we can merely mention: An elaborate memoir on "The Differential Diagnosis of Traumatic Intra-cranial Lesions," by Dr. Chas. Phelps; a "Discussion on Tuberculosis," participated in by Drs. H. M. Biggs, E. K. Dunham, E. G. Janeway, L. F. Flick, J. H. Huddleston, J. D. Bryant, W. H. Park, J. G. Truax; "Some Recent Studies on the Communicability and Treatment of Diphtheria and Pseudo-diphtheria," by Dr. W. H. Park; "A Practical Study of Serious Abdominal Contusions, with a Clinical Report of Twenty-one Cases," by Dr. T. H. Manley; "Intestinal Anastomosis, with the Report of a Case," by Dr. F. H. Wiggin; "Brief Comments on the Materia Medica, Pharmacy and Therapeutics of the Year Ending October, 1894," by Dr. E. Squibb.

A GERMAN-ENGLISH MEDICAL THESAURUS, OR TREASURE OF SINGLE AND COMPOUND MEDICAL WORDS AND TERMS, WITH DIALOGUES, IDIOMATIC PHRASES, AND PROVERBS, ETC., AND GERMAN AND ENGLISH INDEXES, FOR PHYSICIANS AND MEDICAL STUDENTS. By REV. HENRY LOSCH, M.D. 8vo, pp. 323. Philadelphia: Published by the Author, 1895. Price, $2.50.

THE need for a good modern, working German-English medical dictionary has long been felt, and this the present work will in large measure supply. It has been written by one familiar, through education and experience, with the wants of students of language, and especially medical language. The book is divided into three parts. The first and second include a systematic presentation of single and compound medical terms in their various relations, and to this 146 pages are devoted. In the third part are contained dialogues, the declensions, and a complete list of irregular verbs; while 136 pages are given up to an index of German and English words and medical terms, to the number of about 20,000, arranged alphabetically.

The work has been well done and is complete within its obvious limitations. It should serve not merely as a word-book, but as a useful aid to the comprehension of a language which is a most important medium of scientific communication.

MIKROSCOPIE UND CHEMIE AM KRANKENBETT.

CLINICAL MICROSCOPY AND CHEMISTRY. By DR. HERMAN LENHARTZ, Professor of Medicine and Director of the Hospital at Hamburg. 2d edition. 8vo, pp. xv, 331. Berlin: Julius Springer, 1895. Price, 8 M. ($2.00).

THIS little book is the outcome of the author's teaching-experiences in connection with the medical clinic at Leipsic. It does not aim to be exhaustive, but deals succinctly and clearly with such matters as are likely to present themselves in the every-day work of the clinician. The first edition was disposed of in less than two years, and this, the second, has been revised and amplified. After an introduction detailing the apparatus and adjuncts necessary for clinical microscopic and chemic examination, the following subjects are considered in detail: (1) vegetable and animal parasites; (2) the blood; (3) the sputum; (4) the secretions of the mouth and the gastric and intestinal contents; (5) the urine; (6) fluids obtained by puncture. The work is illustrated with sixty-three cuts in the text and three admirably executed colored plates. It commends itself as a safe guide and useful companion for student and practising physician.

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INDEX OF MEDICINE: A MANUAL FOR THE USE OF SENIOR STUDENTS AND OTHERS. By SEYMOUR TAYLOR, M.D., Member Royal College of Physicians, Senior Assistant Physician to the West London Hospital. Large 12mo, pp. 794 and xii. Cloth, $3.75 Philadelphia: Lea Brothers & Co., 1894.

THIS volume is a condensed practice of medicine, and as such may fulfil its chief object, of aiding students preparing for their final examinations. We are inclined to believe, however, that its usefulness will be limited, for it will help least those who need it most, and those whom it could help will not need it. The statements and expositions contained in the book are good and reliable so far as they go; the weakness of the work lies in the omissions. Thus, in the treatment of typhoid fever the use of the cold bath according to the method of Brand is not even referred to; nor under diphtheria is the subject of the antitoxin mentioned. Space is devoted to typhlitis and perityphlitis, but not a word is said of appendicitis. No description is given of the modern methods of examination of the blood or gastric contents. We further fail to find descriptions of akromegaly, syringomyelia, and Morvan's disease.

CLINICAL LECTURES ON THE PREVENTION OF CONSUMPTION. By WILLIAM MURRELL, M.D., F.R.C.P. London: Bailliere, Tindall & Cox, 1895.

NO subject is more important than the one treated in these lectures, and the prevailing views are clearly and concisely set out. We differ from the author in placing more stress upon the physical education of the individual than upon the measures adopted to prevent contagion, though the latter are, of course, of considerable importance.

We are glad to see that the author believes that "forcible legislation (on the subject of notification) is a mistake unless backed up by popular opinion."

Dr. Murrell wisely calls attention to the dangers of travel on land and sea from being shut in close, ill-ventilated apartments in company with a tuberculous fellow-traveler, or following the use of the apartment by such a one. Effective measures to prevent this means of contagion are within the reach of legislation, and such legislation might well be adopted and enforced.

LECTURES ON HYGIENE AND SANITATION. By SENECA EGBERT, A.M., M.D., Professor of Hygiene, Medico-Chirurgical College. 8vo., 177 pages. Philadelphia: Franklin Publishing Co.

DR. EGBERT has succeeded very well in accomplishing the task that he states in his preface was in view in the preparation of his book, namely, to furnish a syllabus of his lectures, and at the same time sufficient treatment of the various topics to make it of value to others. The extended and extending field of hygiene has been well considered, being naturally presented in its relations to medicine. It is often overlooked that the important department of public hygiene has an engineering aspect, but it, of course, is not the function of this book to consider that phase. In the more technical features of the science Dr. Egbert has consulted the recent manuals, and thus has kept the work up to date. It is well written and well printed. We regret that it contains no index and only a very brief table of contents.

# CORRESPONDENCE.

## COMPETITION AND MEDICAL ETHICS.

*To the Editor of* THE MEDICAL NEWS,

SIR: I dislike disputes, and especially this one, but I trouble you with this letter merely because I would like to see discussed in a dignified manner the real difficulty of the question as regards medical ethics. It is always omitted or evaded. The two things that to my mind militate against the Code of Ethics are:

*a*. Competition involved in the practice of medicine as a means of gaining a livelihood.

*b*. Total absence of any provision for effective punishment against infringement of the Code.

There is no comparing of the practice of medicine and the rules that may guide it with such totally different things as common ethics, religion, and law. In not one of these, so far as I can see, does competition enter to the slightest degree. Ethics has to do solely with private conscience, and as soon as it widens out enough to affect one's neighbors it has to do with law or government (always, however, with restraining penalties attached). A man may lie or not to his neighbor; it is a matter of his own conscience and maintenance of his own reputation. If he steals from his neighbor the law steps in and punishes him. Ethics says "thou shalt not lie; but if you do, settle it with your own conscience; if you become known as a habitual liar, you may lose in the long run; but whatever you do, you are always your own free agent, under the constraint only of your own individual conscience. You are not competing with anybody but yourself."

The ethical ideal is a variable thing. Not many approach the ethical ideal of the early Christian martyrs. The ethics of the Hottentots differs from that of the North American Indians. The ideal of ethics is a personal, an individual ideal, and largely a matter of education. Its mandates will be followed, therefore, solely in accordance with the view the individual conscience takes. Another may consider wrong what I consider right, and *vice versa*, and each will act accordingly. One may consider it wrong to take a patient from another physician; the other, reasoning from another standpoint, may consider it quite legitimate; for it is solely a question of personal competition. Each will act, therefore, in accordance with his own particular view of the ethics of the case. If by so doing one injures himself, that is all right, he then has only himself to blame; but if by his act he injures the other he should be punished, and the question ceases to be one of pure ethics, and becomes one of law. And that is my contention—that the Code of Ethics, to be effective, should be made after the manner of a law, with penalties attached; for as a mere expression of ethics it loses its force, as ethical questions are, to a large extent, controversial. The field of ethics is a broad one, and ranges all the way from the law of self-preservation at its lowest point to heroism and martyrdom at its highest. A child is caught in a burning house; two men with their families stand outside. It is certain death to enter the house and try to rescue the child. One man says, "I will not go; my family and my own little ones are dependent upon me and are first in importance to me." (Law of self-

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preservation.) The other man says, "I will go in and try to save the child." (Heroism.) He is killed. Which was the better ethically? Was not each right, reasoning from his individual standpoint?

We admire the hero, but we are not justified in despising the other. One soldier leaves all and rushes to death in battle (admirable); another thinks of his home and its need of him (I am not referring to the personal coward who merely runs on account of personal fear) and sends a substitute to the front (not very admirable, but certainly not despicable, either). Both soldiers may be entirely right; but if the government really wants the second man to fight for it, the question is taken out of the sphere of controversial ethics and lifted into that of law; the man is compelled to go to the front or be severely punished in some way.

I shall not even speak of religion and its tenets; that is so absolutely a matter of private opinion that I never for one moment suspected anyone of imagining that religious truths and beliefs were to be compared with any human code. Religion is a matter between a man and his Creator; the Code of Ethics is a rule of expediency between men. Pray, where does competition enter in a man's religion? A Jew and Gentile may live most amicably together, but in their bartering (competition) they may wrangle like the Kilkenny cats.

As an admirer of the Code of Ethics, I do wish it were discussed more intelligently and practically by its staunch supporters. As a pretty piece of ethical writing, it is all right; as an effective rule for the profession, it is valueless for the reasons given.

Sincerely yours, M.

### LAW FOR THE PREVENTION OF OPHTHALMIA NEONATORUM.

*To the Editor of* THE MEDICAL NEWS,

SIR: In view of the recent attempt of the Legislature of Pennsylvania to meet the wishes of many physicians by passing a law protecting professional confidences of medical men, readers of THE NEWS note with interest what it has done for those who desired legislation to combat the ravages of ophthalmia neonatorum.

The law on the subject just passed and printed in THE MEDICAL NEWS, July 13, p. 55, contains several blunders which prevented its indorsement by the College of Physicians of Philadelphia, after it had been fully discussed by both the Council and the College, and which should have been eliminated before the bill was passed. The omission from Section 1 of the (probably intended) article "a" before the words "legally qualified practioner" (*sic*, in the copy of the law sent out from the State Department—practitioner evidently meant) robs part of the law of its obvious significance. Then the duty of notification in writing is put upon a "midwife or nurse or other person." This might mean a bed-ridden mother with only a neighbor to help her, and it is rather hard on those who cannot write.

Sections 2 and 3 are probably inoperative because no money-provision is made for carrying out their mandates. If operative, they are otherwise defective, for Section 1 does not fix a time within which the Health-officer shall do what he is commanded (the word immediately being too vague); and Section 3 commands the Health-officer to furnish copies of the Act to those who are "known to him" to act as midwives or nurses—and how may that be ascertained, in case complaint were lodged against him for neglecting his duty? Then, again, how much time has he to do this in? And, finally, when a Health-officer sends out his "directions for the proper treatment" of ophthalmia neonatorum, shall he give the treatment rationally, or homeopathically, or eclectically, or hydropathically, or physio-medically? or will faith-cure or Christian science teachings stand for a discharge of his duty? or must he furnish all methods, and let each "midwife or nurse or other person" select?

It is a pity, after all the effort made by those who would check the progress of ophthalmia neonatorum, and all the resolutions of County and State Medical Societies, that they should get nothing from the Legislature more plain, practical, and effective than this law.

Yours truly,

CHARLES W. DULLES.

## SOCIETY PROCEEDINGS.

### AMERICAN LARYNGOLOGICAL ASSOCIATION.

*Seventeenth Annual Meeting, held at Rochester, N. Y., June 17, 18, and 19, 1895.*

(Concluded from page 55.)

THIRD DAY—JUNE 19TH.

DR. T. MORRIS MURRAY, of Washington, continued the discussion on "Tuberculosis of the Upper Air-passages." He related that his experience with lactic acid in the treatment of laryngeal and pharyngeal ulceration had been on the whole disappointing, though good results were occasionally observed. One case had remained healed for five years.

DR. INGALS thought that in an equal number of cases operated on and not operated on, the latter would show more cures, presupposing the usual topical treatment. He has seen ulcerations heal under lactic acid without curetting. It is of doubtful propriety to cut away large masses of tissue when there is deep infiltration. Iodin trichlorid has been of great value, used in a solution of gr. i–ij to the ounce. Cocain depresses the nervous system, and he prefers a mixture of tannic and carbolic acids with morphin.

DR. DALY had obtained the best results with iodoform, with which he saturates the patient, using also creosote in large doses, and inhalations, together with special attention to the diet.

DR. WRIGHT expressed skepticism as to the possibility of curing laryngeal tuberculosis. Of course cases will occasionally heal under curetting and lactic acid. He thought that too much attention had been given to one single etiologic factor. The disease may cause no symptoms whatever, even when the deeper parts are involved. The cases reported cured have been in the first stages of the disease.

DR. SHURLY added that he had used Dr. Ingals' sedative formula, but had had great difficulty in making a permanent solution of its different ingredients. He therefore used them separately. Creosote is a good disinfectant, but he has been disappointed in the results from its internal administration. He could not see how it was of any use to curet a few ulcerations when there were others present in accessible localities.

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DR. A. B. THRASHER, of Cincinnati, read a paper on

NECROSIS OF THE MIDDLE TURBINATE.

He said that while the lower turbinate was more frequently inflamed in acute rhinitis than the middle, the position of the latter with reference to the orifices of all the accessory sinuses was such that they were easily closed up when the bone became inflamed and their mucous contents became purulent.

Ethmoiditis is a frequent disease, but middle-turbinate necrosis is rare; although there is no *à priori* reason for this rarity. Given a case of ethmoiditis and a polyp springing from under the middle turbinate, the conditions are certainly favorable for the development of necrosis of the latter structure. On the other hand, it is possible that a polyp may spring from a membrane bathed in the purulent discharge of an ethmoiditis. The same conditions may be observed in connection with aural polypi developing in the course of a purulent otitis media.

Dr. Thrasher narrated the case of a woman who a year after an attack of influenza presented severe pain on the left side of the (slightly swollen) nose, radiating over the side of the face and head, with constant but regular exacerbations. There was an offensive discharge, and the anterior extremity of the left middle turnbinate pressed upon the septum and upon the lower turbinate. On removal of the middle turbinate with the cold snare dead bone was exposed. The adjacent ethmoid cells were curetted and there was no recurrence in four years. A second case was observed in a man, twenty-six years old, who had suffered for two years with neuralgia in the right supra-orbital and infra-orbital regions. The right middle turbinate appeared as a large rounded mass, filling up the middle meatus and pushing out the outer wall of the nose. On attempting to remove the whole mass a large open cavity was crushed into and fragments of necrosed bone were removed.

The general symptoms of the condition are: 1, pain, referred to the orbit or above or below, and sometimes to the ear; 2, discharge, often offensive; 3, nasal obstruction and anosmia, but it must be remembered that the breathing is sometimes unimpeded even in severe disease of the middle turbinate; 4, obstruction of the mouths of all the accessory sinuses; 5, external deformity; 6, various reflex disturbances.

In mild cases alkaline sprays, cocain, scarification, and, if necessary, incision are employed. In older cases the cold snare, trephine, drill, or saw-tooth scissors may be required. Prompt removal of the offending tissue is to be advocated.

DR. THRASHER also related the history of a case of

CONGENITAL OSSEOUS STENOSIS OF THE NARIS.

The patient, a male child, aged eighteen months, was well nourished, but a mouth-breather. There was a muco-purulent discharge from the right nostril. Adenoids in the vault of the pharynx were removed under chloroform. A probe passed through the right nostril struck an obstacle just before reaching the finger in the naso-pharynx. No opening could be found through it; but pressure with a nasal curet easily broke through. It seemed to be a thin web of bone, thicker at the septum, running across and thinning out just opposite the turbinate bone on the lateral wall.

DR. L. W. LANGMAID, of Boston, said that he had seen three cases of congenital nasal occlusion. Such noses are incapacitated for immediate performance of physiologic function after operation. Hence mouth-breathing is likely to continue for a certain length of time.

DR. INGALS remarked that many cases of adenoids presented partial closure of the posterior nares, and in every operation he makes it a point to ascertain the potency of the nares by passing a probe back into the naso-pharynx before the patient emerges from the anesthesia.

DR. JONATHAN WRIGHT, of Brooklyn, read a paper on

CYSTS OF THE NASO PHARYNX AND ORO-PHARYNX AND FIBROMA PAPILLARE OF THE NASAL SEPTUM.

He contended that cysts of the naso-pharynx and sinuses of its mucosa are very rare. The pharyngeal "bursa" is not a normal occurrence. It and the cysts result from the agglutination of the folds and projections of the membrane, as these latter occur in infancy. Hence a partially or completely closed cavity results, from which drops out mucus or which is gradually distended. Transverse section through the folds of the naso-pharyngeal mucosa of a newborn child discloses oblong spaces in the lymphoid or connective tissue, or just at their junction. These spaces, presumably lymph-spaces, are lined by a single layer of endothelial cells, and it is probable that cysts can arise from their gradual dilatation. Dr. Wright related the case of a woman, aged twenty-eight years, who had complained of nasal obstruction for seven years. A soft pedunculated freely movable vascular mass presented in the left nostril in front, and was removed with the cold-wire snare with only moderate hemorrhage. It was attached to the upper part of the cartilaginous septum, about 2 cm. behind the columna. This site coincides with an area subjected to the attrition of the upper end of the triangular cartilage forming the ridge known as the "plica vestibuli." In this case it rubbed against the septum, when the lower edge of the triangular cartilage was rolled out by muscular action in the dilatation of the ala nasi during inspiration. The base was cauterized, and in nine months there had been no recurrence.

DR. NEWCOMB stated that he had recently removed a similar formation with the cold snare, and without hemorrhage. There was still a mass *in situ*, and presumably he had a multilocular condition to deal with.

DR. LANGMAID had recently seen a naso-pharyngeal cyst the attachments of which were such as to forbid the use of the wire snare. It was accordingly removed by avulsion. When recurrence occurs in these cases, it is possible that the cyst-wall has not been thoroughly extirpated.

DR. W. H. DALY, of Pittsburg, opened the discussion upon the

RELATION OF VASOMOTOR DISTURBANCES TO DISEASES OF THE UPPER AIR-TRACT.

He pointed out that the nasal mucosa may be pallid and permit a leakage of serum. His own cases showed cures by intra-nasal operation in 63 per cent. of catarrhal

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and hay-fever asthmas, and 40 per cent. of the spasmodic variety. His general conclusions were: 1. Abnormal disturbances of vasomotor origin may be primary or secondary. 2. Both may be coactive and progressive. 3. The surest and quickest relief comes in those cases in which surgical interference finds its proper election.

DR. MULHALL remarked that there is a pallid as well as a turgescent variety of nasal vasomotor disturbances, just as some people get white and others red when angry. The mode of living has much to do with the production of these conditions. Proper diet and exercise will do much to relieve them. Dr. Mulhall advocated daily cold-water frictions, mild galvanism, atropin, gr. $\frac{1}{120}$, on rising, and one-drop doses of liquor potassii arsenitis after meals.

DR. SIMPSON thought that if patients were examined more carefully it would be found in most instances that the cause of disturbances in the upper air-passages lay very near the seat of the disease to be treated, instead of being a so-called "reflex."

DR. J. C. MULHALL, of St. Louis, read a paper entitled

THE CIGARET-HABIT.

He said that the smoker, chewer, and snuff-taker all experience a different kind of satisfaction from their respective habits. The cigaret-smoker soon becomes an inhaler. The smoker of a cigar or pipe rarely inhales. The smoke probably does not enter below the first division of the bronchi, and not the lungs proper. A cigaret either stronger or milder than the one generally used does not give the customary satisfaction to the tracheal and laryngeal mucosa. The effect of inhalation is really a pleasurable excitation of the laryngeal and tracheal filaments of the pneumogastric nerves. The amount of absorption from smoke varies, of course, according to the extent of surface, and it has been estimated that in inhalers this surface is three times as large as in non-inhalers. The frequency and ease with which cigarets can be smoked very properly leads to the designation of the habit as "deadly." Moreover, the small amount and frequency of tobacco-consumption are analogous to the effects of giving a certain amount of drug in divided doses.

The evils of cigaret-smoking are local and constitutional. The latter are identical with those of all forms of tobacco, always nicotinism in greater or less degree. In the young these evils are very great. Cigarets are so cheap that they may be said to teach the use of tobacco. The first cigaret never nauseates, as does the first cigar.

Locally, cigarets may aggravate a previously existing condition, but they do not originate any throat-disease worthy of the name. The most that results is a mild hyperemia, or even a slight catarrh, with the ejection by a single effort of pearly whitish masses. Occasionally a few râles, wholly bronchial, are heard. The murderer Maxwell inhaled forty cigarets daily, and, while he was a total wreck as to his nervous system, he had no laryngeal or tracheal disease, as was determined by post-mortem examination.

DR. INGALS took issue as to the harmlessness of tobacco on the throat. He has seen pronounced tracheal cough from its use.

DR. CARL SEILER, of Philadelphia, stated that smoking is harmless if the patient does not spit, and thus keep up an abnormal dryness of the pharynx.

DR. LANGMAID regarded the greatest bad effect of tobacco on the young to be its power of destroying consecutive thought. Pipe-smoking is not so harmless as is generally supposed, owing to the heat of the stem, which is kept up by the relatively large mass of fire in the bowl.

The following papers were read by title:

CYST OF THE MAXILLARY SINUS,

by DR. CHARLES H. KNIGHT, of New York;

PEMPHIGUS OF THE PHARYNX AND LARYNX,

by DR. H. R. BROWN, of Chicago;

COMPENSATORY ARYTENOID MOVEMENT,

by DR. WILLIAM PORTER, of St. Louis;

A STUDY IN DIPHTHERIA,

by DR. S. HARTWELL CHAPMAN, of New Haven.

In executive session the following gentlemen were elected to active Fellowship, their theses being respectively as follows: DR. THOMAS HUBBARD, of Cleveland, "Treatment of Acute Laryngitis;" DR. J. E. H. NICHOLS, of New York, "Intra-nasal Causes of Headache;" DR. J. E. BOYLAN, of Cincinnati, "Herpes Chronica Pharyngitis;" DR. F. E. HOPKINS, of New York, "Edema of the Larynx, with report of a Case."

The election of officers for the ensuing year resulted in the choice of DR. W. H. DALY, of Pittsburg, for President, and DR. H. L. SWAIN, of New Haven, for Secretary. The next meeting will be in Pittsburg in 1896, the exact date to be determined by the Council.

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## *PHILADELPHIA ACADEMY OF SURGERY.*

*Stated Meeting, June 3, 1895.*

The President, DR. THOMAS G. MORTON, in the chair.

DR. A. HEWSON exhibited several instruments.

I. A DIVIDED SPRING FOR HEAVY BONE-CUTTING FORCEPS.

The forceps presented has been used in four laminectomies with very great success, the ease with which the spinous processes and the laminæ were cut having been remarkable. The forceps is of the general style of the costatome, and, in addition to the purpose already mentioned, it is useful for cutting off plaster bandages. The blades, are set at an obtuse angle to the handles so as to facilitate cutting the laminæ. The upper cutting-blade is serrated like the teeth of a saw. The lower, which is also a cutting-blade, has at its extremity a horizontal projection, similar to that on the bandage-shears, which is to be inserted beneath the laminæ and serves to keep the blade in position while cutting the bone. The handles are much longer, to give greater leverage. The new point to which attention was directed is the divided spring. All the other instruments of this kind are provided with a single spring, which keeps the blades apart. In this instrument the spring is divided so that it can be turned back when not in use, and when extended we get the full power of the spring to open the blades. It is useful upon both the living and the dead body. It greatly facilitates opening the spinal column for removing the cord, and for this purpose is much better than the spinal saw.

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### II. PORTABLE LIGATURE-TUBE HOLDER.

This holder resembles a gigantic test-tube holder, made of sheet iron, painted white. It consists of two uprights and three shelves. The uprights are 9¼ x 4 5/16 inches, having three hollow blocks, 2⅛ x ⅜ x ⅜ inches, placed on the inside at the base 2¼ and 8¼ inches therefrom, leaving one inch above the top shelf. The three shelves are 13 3/16 x 14 5/16 inches. The first, or upper shelf, has five holes for ligature-tubes, 1½ inches in diameter. The second, or middle shelf, has the same number of holes, 1¼ inches in diameter. The third, or bottom, is without holes. The difference in diameter of these holes gives equilibrium to the tubes when in place. On the under surface of each shelf at the extremity is a block with a projection which fits into the hollow block of the uprights. These blocks are opposite to those on the uprights, so that the projections may be pushed in when the holder is ready for use. The space occupied by the whole when apart is 13 3/16 x 4 5/16 x 1½ inches, and weighs in its present crude form eight pounds.

When in use the corks of the tubes are removed and placed in a proper antiseptic solution and the orifice of each tube is covered with mercuric-chlorid gauze. The assistant removes the ligature as required with a pair of forceps, so that it passes directly from the solution to the hand of the operator without handling. This mode of procedure has been in operation at the Jefferson College Hospital for two years past, and has given great satisfaction. The original thought of this mode of handling ligatures was brought about by having each ligature in a separate tube, but this was found to be a cause of infection, as it was impossible to insure the aseptic condition of a fine glass tube for each ligature; and too much time was consumed in the preparation of such tubes.

### III. SET OF ANATOMIC INSTRUMENTS.

This set of anatomic instruments is of interest from a historic standpoint of view, as it contains a syringe for fine injection of lymphatic vessels, used by William Hewson, F.R.S., in 1768, in his preparations. This brass syringe is in a perfect state of preservation, with four gold-pointed nozzles. It has been recently used in preparing fine injections of the lymphatics, as in that exhibited to the Academy about a year ago. The large brass syringe was used by the late Addinell Hewson, in his preparations during his student days, and by means of which, with the various attachments, he prepared subjects for fine dissection. The sternum-dilator gives the greatest width possible for aortic injection (6 x 8 inches). In making tallow-and-soap-injections it has been found that veins injected from the heart will hold one-quarter more material than the arteries injected by the aorta, and still some of the cutaneous veins of the extremities will not be filled owing to their finer valves. In introducing the preservative fluid the hydrostatic method is used, the subjects taking from three to five gallons of fluid. The saw is the ordinary fine carpenter's pattern, with an upright handle about three inches from its extremity on the upper margin. The cutting-edge has been lunated anteriorly, while the posterior or handle extremity is at right angles. This is a modification of the Forbes' saw, the cutting-edge of which is lunated. The object attained by the modification is that it enables the instrument to be used in either sawing the cranial bones or the laminæ, which is not the case with the entirely lunated margin. The forceps just described is superior to the saw for the laminæ, giving greater space and more rapidity of action, besides avoiding all risk of injury to the spinal nerves. The case contains, in addition, spaces for two balls of twine (large and small), Hay's saw, enterotome, brain-knife, blowpipe, hammer, chisel, large incision-knife, student's dissection-case with its accompaniments, and stopcock-pipes of various sizes for immediate introduction into the vessels.

DR. CHARLES W. DULLES made some

### REMARKS ON FRACTURES OF THE SKULL.

He called attention to a point in regard to fractures of the skull that he believed does not receive in this country, or anywhere except in Germany and Russia, the attention that it deserves, *i. e.*, the mechanism of indirect fractures. This has much more than a purely scientific interest; it may be an important factor in our application of the art of surgery as well. Reference was made to a paper,[1] read eight years ago, in which was expounded, the theory known as the "bursting-theory," of indirect fractures.

The bursting-theory of indirect fractures of the skull may be invoked to clear up many difficulties of diagnosis in fractures of the skull, and should invariably be invoked before conclusions of a medico-legal character are reached.

Both in the living and in the dead the application of the "bursting-theory" has furnished very instructive suggestions in regard to the diagnosis of accidents to the skull, making them much clearer and the treatment much more satisfactory. An appreciation of the bursting-theory also often clears up the perplexities of cases in which, without detectable fracture of the skull, there is found a rupture of bloodvessels and hemorrhage within the cavity of the skull, either extra-dural or intra-dural.

Briefly stated, the bursting-theory may be outlined as follows: The skull is a hollow case, of a somewhat ellipsoid form, the wall of which is formed of bone, varying in thickness and density in different parts, and of a peculiar conformation, and with peculiar contents and coverings. When such a case is struck, or when it strikes upon a resisting body, it is compressed in a direction in the line of the force and counter-pressure (which latter may depend wholly on *vis inertiæ*). The result of this compression is to shorten the prime diameter, and of necessity to lengthen the transverse diameters. As illustrating this first phase of action, Sir Charles Bell, in the early part of this century, made an experiment (which it is easy to repeat), in which he placed movable balls inside and outside of a hoop and touching it, and found that a blow upon any part of the hoop caused the ball immediately under it and that immediately opposite it to move toward the center of the hoop, while those distant ninety degrees from it moved away from the hoop. If this experiment were to be modified so as to meet the conditions of a hollow sphere instead of a circle, we might place half of a hollow sphere upon a resisting surface, and striking it on the upper pole would

[1] Trans. Coll. of Phys. of Philadelphia, 1886.

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find that this pole would approach the resisting surface and the circumference would be elongated and describe a larger circle. In such an experiment, made upon an elastic substance, the compression and elongation would be followed by a corresponding expansion and shortening. The first compression and elongation spoken of are of the chief importance in indirect fractures of the skull, and in them we have (to use a simple illustration) conditions similar to those when an umbrella is raised. In the latter case it is plainly seen what takes place, namely, that, as the pole is brought nearer to the equator, this is elongated and the space between the meridians (the ribs of the umbrella) is increased. This increase being expected and provided for by material which lies in folds between the meridians, this is simply spread out. In a body with no such provision, however, any force that would bring its poles near together, and consequently lengthen its equatorial circumference and separate its meridians, would at once set up a struggle between the force applied and the cohesion of the particles lying along and between the meridians. If the power of cohesion were sufficient, there would be no disruption; if, however, it were not, then there would be a split beginning at some point near the equator, where the strain is most severe, and passing in opposite directions toward the poles. This is what would take place in a perfectly symmetric homogeneous elastic body. What naturally takes place in the skull is shown by observation and experiment to be this, modified by the peculiar structure, formation, contents, and surroundings of the skull.

This is what is known as the "bursting-theory," and its bearing upon practice will be appreciated by those who apply it. It provides the surgeon—not with certainty of diagnosis, but with suggestions of probability, which will increase his chances of making a reliable diagnosis. The inferences from it, which are of a practical nature, as are follows: Force applied to the skull, of sufficient violence and rapidity of action, will produce what is known as a direct fracture—a fracture at a point where the violence was applied. In these cases the rapidity of action is a very important element, as it is a well-known fact in physics that time enables cohesion to resist a disruptive violence, which, if instantaneously applied, would at once overcome cohesion. Force less sudden and less extreme applied to the skull will bring actively into play the elastic properties of the skull, and if violent enough will lead to a fissure at some distance from the point at which the violence was applied, and usually in a line meridional to the point where the force was applied. Study of a large number of accidental and experimental fissures indicates that blows upon the forehead directly in the middle line are likely to produce a fissure of the skull, passing from front to back in or near the middle line, and more frequently at the base of the skull than in the vault. Blows applied to the forehead on one side or the other are likely to produce fissures in a line with the direction of the force, and crossing the skull to the other side. Such fissures occur almost always at the base, and they usually terminate in the middle cerebral fossa, though they sometimes cross the foramen magnum and traverse the cerebellar and posterior cerebral fossæ. Force applied to the middle of the occiput usually produces a fissure passing in the direction of the force around the occiput, laterally or perpendicularly, sometimes separating the lambdoid suture, sometimes splitting the lower part of the occipital bone and going into the foramen magnum, and sometimes crossing the petrous bone, breaking it transversely and passing into the foramen lacerum medius. Such fissures may pass straight down to the foramen magnum and (crossing over) split the body of the sphenoid bone and extend into the ethmoid or frontal bone. (Such fissures furnish typical illustrations of the correctness of the bursting-theory.) Force applied to the side of the head, in almost all cases, produces a fissure passing through the base of the skull in the middle cerebral fossa. Such a fissure sometimes traverses this fossa completely and may pass completely through the base and vault, dividing the skull into two halves. In some cases the fissure passes directly through the coronal suture; in many cases it splits the petrous bone longitudinally. In some cases force applied to the side of the head causes a splitting off of the posterior clinoid processes—an occurrence that is explicable only upon the supposition that the tentorium cerebelli, which is attached here and to the occipital bone, is put upon the stretch when the skull is elongated antero-posteriorly and drags these portions from the body of the sphenoid. Force applied to the side of the head frequently produces fissures passing around the side of the head, through the parietal and squamous bones, and often passing to the basi-sphenoid, but rarely dividing it completely. In some cases force applied directly to the vertex produces a fissure in the long axis of the skull. Such a fissure may be of very great extent and may even divide a skull into two symmetric halves. Longitudinal (antero-posterior) fissures occur more frequently at the base of the skull than at the vault.

An interesting form of violence, applied to the skull, is that due to falls upon the feet, where the momentum of the body is suddenly arrested by the resistance of the earth. In such a case a ring of bone surrounding the condyles may be driven into the skull, or—as observation and experiment show—the process of the sphenoid bearing the posterior clinoid processes may be broken off by the pull of the tentorium cerebelli, when momentum and resistance lessen the diameter from condyles to vertex and lengthen the diameter from occiput to sinciput.

There are fractures that cannot be accounted for by the bursting-theory. There are some fractures in which the force applied is so great and acts in such a manner that the skull is crushed so as to hide any evidence of the play of its elastic properties, the fracture being of a comminuted sort; and there are others in which one segment of the skull seems to be shoved over the other by forces of pressure and counter-pressure which require some study before their mode of operation can be understood. For this reason it is of importance to learn in every case the position which the skull has held in relation to the spinal column or to any body capable of exerting counter-pressure. No less is it important not to overlook the counter-pressure that is caused by the simple *vis inertiæ* of the skull and its contents.

The conviction was expressed that the supreme law governing the production of indirect fractures is that which depends upon the fact that the skull is practically a hollow elastic case approximately oval in shape, and which may be briefly formulated as follows: When a

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sufficient force is applied to any curvilinear part of the skull, if this part do not give way immediately, the axis of the skull lying in the same line as that of the applied force is shortened, and all the axes lying in planes at right angles to this line are correspondingly lengthened, with a proportional lengthening of their circumferences and separation of their meridians, so that the direct depressing force is converted into an indirect disruptive force acting at right angles to the direction of the former. The effect is to produce a fissure or fissures which will have a general meridional direction.

The application of this law is subject to certain modifications due to anatomic and architectonic peculiarities of the skull, its coverings and contents, and to certain exceptions due to the amount and velocity of the force applied as well as the coming into play of peculiar counter-forces.

DISCUSSION.

THE PRESIDENT asked if the alteration in the conformation of the skull, the shortening of the axis in the direction of the applied force, and the lengthening of the transverse axes had been accurately determined by measurement.

DR. DULLES replied that the alteration had been carefully measured, and there was an appreciable difference, the amount of which is mentioned in the earlier paper.

DR. HEWSON asked if, in connection with the remarks upon the fractures of the clinoid processes, the fact had been taken into consideration of the difference in the height of the free concave margin and anterior attached extremities to the posterior clinoid processes? Owing to this, the portion of the tentorium open for the passage of the nervous substance is triangular, with curved sides, and this is much higher than its attached anterior extremities to the posterior clinoid processes. The direction of the free margin of the tentorium is pointed upward over the superior vermiform process of the cerebellum, this margin being higher than its anterior attachment. It was also asked if the direction of the traction upon the posterior clinoid processes contributes anything to the fracture? Has any laceration of the margins of this opening been observed?

DR. DULLES said that whether or not the posterior clinoid processes are higher than the arch of the tentorium depends much on the way in which the skull is held. Under ordinary circumstances, when the head is held erect, they are about on the same level.

DR. HEWSON said that the tentorium arches upward.

DR. DULLES added that he had not overlooked this fact in his study of fractures of the skull. Under ordinary circumstances the curve of the tentorium would supply an amount of slack material which would prevent any pull on the clinoid processes. But it must be remembered that the tentorium rests upon the cerebellum and is held tense by the falx cerebri above the cerebellum, and is so attached that the latter occupies a closed, unyielding case. The brain-substance is so largely made up of water that it is almost as incompressible as water [which is practically entirely incompressible], and the cerebellum will hold up the tentorium almost as effectually as if it were made of marble, and so cause a pull at its posterior part to be transmitted to its anterior attachments.

# NEWS ITEMS.

*The Third International Congress of Physiologists* will be held at Berne, from September 9 to 13, 1895. Membership of the Congress shall be open to all professors and teachers of biologic science, belonging to a medical faculty or any other similar scientific body, as well as to all scientific men engaged in biologic research.

The sessions of the Congress shall be devoted to physiologic communications and demonstrations. Further, communications relating to original research in anatomy, general pathology, and pharmacology are acceptable in so far as they present features of general biologic interest.

It is desirable to keep the communications as far as possible demonstrational and experimental in character.

The languages recognized as official at the Congress are English, French, and German.

Each person who makes a communication shall sign the protocol of his own communication.

The length of a communication may not exceed fifteen minutes.

The press shall not be officially admitted to the Congress; each member is free to send private communications to scientific journals.

Professor Kronecker, Director of the Physiological Institute of the University of Berne, has kindly expressed his readiness to afford to members of the Congress all facilities for demonstration and experiment, as well as for the exhibition of scientific apparatus.

In connection with the Congress, an exhibition of physiologic apparatus will be held. Exhibits may be contributed by all members of the Congress, by the directors of physiologic laboratories, and by makers recommended by any member of the Congress, or by the director of a physiologic laboratory. The exhibition of apparatus will open two days before the Congress, and will close two days after the Congress.

Those intending to be present should kindly notify their acceptance, and, if possible, the title of their communications, either to Professor Hugo Kronecker, Berne, or to C. S. Sherrington, General Secretary for the English Language, 27 St. George's Square, S. W. London.

Titles of communications may also be sent to Frederick S. Lee, Secretary of the American Physiological Society, Columbia College, New York City.

*Hospitals for Tuberculosis.*—At the recent meeting of the American Climatological Association the following preamble and resolution were unanimously adopted:

WHEREAS, Since tuberculosis has been demonstrated to be a communicable disease, it has become doubly desirable that hospitals for the reception of the poor afflicted with this disease should be established,

*Resolved*, That the American Climatological Association recommend the establishment of such hospitals in every State, not only for the relief of the great suffering attending this disease among the poor, but also as a protection of the community against its spread.

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***Relative Standing of the Graduates of the Various Medical Colleges***, examined by the State Board of Medical Examiners representing the Medical Society of the State of Pennsylvania, June 18–21, 1895:

| Medical College from which applicant graduated. | No. examined. | No. failed. | Per ct. of failures | Aver. grade. |
|---|---|---|---|---|
| University of Pennsylvania . . . | 136 | 1 | 0.73 | 86.41 |
| Jefferson Medical College . . . | 65 | 3 | 4.68 | 85.28 |
| Medico-Chirurgical Coll., Phila. . | 41 | 5 | 12.19 | 80.65 |
| Western Pennsylvania, Pittsburg . | 61 | 9 | 14.92 | 80.68 |
| Baltimore Medical College . . . | 4 | 1 | 25.00 | 81.58 |
| Coll. of Phys. and Surg., Baltimore | 24 | 6 | 25.00 | 81.00 |
| Woman's Med. Coll., Philadelphia | 26 | 7 | 26.92 | 80.01 |
| Miscellaneous Colleges . . . . | 33 | 9 | 27.27 | 79.16 |
| Total . . . . . | 390 | 41 | 10.48 | 83.83 |

Highest average obtained . . . . . 94.86

***The Fifth International Congress of Otology*** will be held at Florence, Italy, from September 23d to 26th. The Committee of Organization includes the following American names: Drs. C. J. Blake and Orne Green, of Boston; A. H. Buck, H. Knapp, and St. John Roosa, of New York; C. H. Burnett and Laurence Turnbull, of Philadelphia.

***Dr. Bransford Lewis***, of St. Louis, has resigned his position in the Missouri Medical College, and has been elected Professor of Genito-urinary Surgery in the College of Physicians and Surgeons, and Genito-urinary Surgeon to the Baptist Hospital.

***For the Report of the Trial of Amick vs. Reeves*** we have received, additionally, from Drs. John Elfers $1, C. R. Pickering $1, E. Kush $1. P. M. Jones $1, W. Osler $10. Dr. Reeves has received besides from Drs. J. T. Whittaker $5, S. Solis-Cohen $2.50.

## BOOKS AND PAMPHLETS RECEIVED.

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# THE MEDICAL NEWS.

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## ORIGINAL ARTICLES.

### ABNORMALITIES IN THE COLOR OF THE HUMAN HAIR.[1]

*With a Report of Cases.*

BY J. ABBOTT CANTRELL, M.D.,

OF PHILADELPHIA:

PROFESSOR OF DISEASES OF THE SKIN IN THE PHILADELPHIA POLYCLINIC AND COLLEGE FOR GRADUATES IN MEDICINE; DERMATOLOGIST TO THE PHILADELPHIA HOSPITAL AND TO THE SOUTHERN DISPENSARY.

ACCORDING to the literature of the subject, I find that the abnormalities in the color of the human hair are found to be gray or white, blue, green, yellow, red, brown, black, and that peculiar condition in which one hair has segments differing from others of the same hair. I also find that a number of instances have been recorded wherein the change has been periodic, without any known cause, or in which season has seemed to be a predisposing factor; and still others in which the hairs have regained their normal color after several years or more of abnormalism.

The abnormal color may be congenital, as in the many cases of albinism, and, while this condition is more prone to be seen in the negro race, it often occurs in whites. It may be complete, and generally it is the offspring of albinos that show this condition; but an example is mentioned by Hutchinson of an albino child being born to parents who themselves were dark. This is the only case on record that I can find, although Kaposi said, in 1874, that it was a well-known fact. In my search I could find no reference to any case of albinos giving birth to other than albino children. Cases have been recorded wherein this condition has been partial, as in those mentioned by Godlie and Morgan, in which a tuft of white hair was mingled with the normally colored ones, this peculiarity being inherited as late as the fourth generation. Anderson refers to a similar example occurring through the third generation. There are many examples in which this change has occurred in the colored race, as that of the so-called leopard-boy, who was exhibited in museums. A case appeared at my clinic some years back in which a colored woman, thirty years of age, presented a tuft of white hair immediately in the median line of the forehead which had a diameter of two inches or more; the woman also presented a difference in the color of the eyes, one being of a bluish tinge, while the other was brown. This woman was accompanied by her daughter, who had exactly the same condition of the hair as well as of the eyes.

The premature loss of color in the hair is no less an important condition, and whether it is a family predisposition or whether it takes place more or less suddenly, whether it is caused by some derangement of the nervous system or accompanying some depressing or grave disease, it is nevertheless abnormal enough to claim our attention.

I have made no attempt to collect those cases in which family predisposition has been a possible cause, as all are aware that this takes place, and I feel that it would be a waste of time to give more than a passing notice to that condition.

In many cases this condition of graying or whitening of the hair has been more or less sudden, and the cause has been one of the conditions enumerated.

Of the many cases in which the change occurred in a few hours or a few days, I include those of many writers. Mention may be made of those in which the change took place in a very few moments, as the persons were either brought out to execution or were awaiting the hangman's noose or the knife of the guillotine. Darwin, quoted by Walter Smith, mentions a man whose hair while being brought out for execution changed color before the eyes of the spectators. Laycock refers to a Sepoy who became gray in one-half hour. Parry states that a prisoner became white-haired within fifteen minutes while confined in the guard-house. Wilson refers to a young lady who was awaiting her affianced to come home to conclude his marriage ceremony, and who suffered the same effect on hearing of his sudden death. Smilie speaks of another case, that of a young man awakening and finding a grizzly bear lapping the blood which was flowing from a wounded arm. Dewees found gray hair on the forepart of a woman's head during her accouchement, which returned to the natural color in four or five days. Boyle met with this sudden change in a young man who was seized by the guards and was, as he thought, to be put to death. Miner witnessed it in a young boy who had learned of his mother's death. Sir John Forbes, who had gray hair, suddenly became white, which condition remained for a year, and at the end of which time it again returned to the gray.

[1] Read at the meeting of the Philadelphia County Medical Society, April 10, 1895.

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Other cases are mentioned by Schenk, Hahnemann, Pechlin, Birsch-Hirschfeld, Nicholaus Florentinus, Borelli, Callius Rhodiginius, Eulenberg, Seligmueller, Marcellus Donatus, Fabricius Hildanus, Camerarius, Scalinger, and others.

There are other cases in which the change was less sudden, such as that of Brown-Séquard, who noticed the change day by day in his own person; of Sir Thomas Moore, the Chancellor of Henry VIII; of Henry of Navarre, who changed in twenty-four hours; the Monk Ubipertus, who had to become gray in one night to obtain a bishop's miter; Louis of Bavaria, who had condemned his wife to death; the well-known Perat, the wife of Laclere, who had to give testimony before the Peers in the case of Louvel; Marie Antoinette, but whom Charcot proved had gray hair before the death of her husband; the case of Smyth, in which a light-haired young man became gray in some places and jet-black in others; those of Landois and Pye-Smith, in which the change was noted after a debauch or delirium tremens; Ludwig Sforza, who had fallen into the bad graces of Louis XII; a man who turned gray in one night after military service in very cold weather, as referred to by Hardy; Smythe's patients, who turned gray in some parts while others became black, the skin also changing to a bronze; that of Banks, in which a young woman showed the condition on the eyelashes; Smilie's case of a young man, who had staked his all on the fortunes of a card, and who winning found on the next morning that his hair had become gray; Fowler's case of a girl who was chlorotic and who had a gray spot, two inches square, on the occipital region; the friend of Ferguson, who changed after business losses; a young girl of thirteen, who, according to Howe, awoke one morning and found a spot one-half inch in breadth on one side of her head, the other showing the change soon after, and the whole head undergoing the change in seven years; this writer also refers to a girl of eight years who had light hair on one side and dark-brown on the other; Anderson saw a case affecting the upper eyelid, in which this part, with the left whisker, was also white and of some years' duration; Thornton gives the notes of the case of a young lady in whom the eyebrow and lash became white within a week after a sudden fright; Faldenheim speaks of a change beginning at the age of twenty and being complete at thirty-three. Cases occurring in four or five days are also recorded by Richter, Bichat, and Moleschott.

Villerme records that in a girl of thirteen the lost hair was replaced by a woolly growth on part of the head and by brown hair on the other, which after a time faded into gray, some of which fell out and left a sad condition of affairs. Brandis has seen one side of the beard white, while the other retained its natural color. Of the many cases in which disease has been a predisposing factor I include that of Crocker, in which the eyelashes became white consequent to a sympathetic ophthalmitis, after removal of the opposite eye; and still other instances of this are spoken of by Nettleship, Hutchinson, Jacobson, and Schenkl. Cases following neuralgia are mentioned by Wilson and Paget, and in the latter there would be a return to the natural color in four or five days, Berger's being witnessed after a hemiplegia on the right side of the head and face; Murray met with it after the removal of a fibroid tumor of the uterus, and in this case it occurred after a severe neuralgia during the night, being confined to the internal half of one eyebrow and the corresponding eyelash. It has also been noted as occurring with epilepsy by Marselli and Beigel; with locomotor ataxia by Bulkley, Debove, and Bartholomy; coincident with cerebral tumor by Bourneville and Poirier; following typhus by Joannet; and in malignant fever in a case of Compagne, the hair was noticed to turn completely gray by the sixth day, but on the seventh it commenced to turn dark, and on the fourteenth it had become its original black color. Raymond observed this condition in a woman of thirty-eight, who parted with her son and who afterward lost money; during an attack of neuralgia she found upon the upper part of the head that the hair had turned red, while the remainder was completely white. Lorry says that graying of one side sometimes follows severe toothache; Wallenberg refers to a child having scarlatina, in whom the hair and nails fell out, and were replaced by a milky-white skin and albinotic hair; Naylor also speaks of a similar cause in his case; Ludwig has known the eyelashes to change color after smallpox.

Following this condition we have another in which we are confronted with the so-called ringed hairs, and several cases of this very interesting abnormality are recorded by Wilson, of a boy of seven years in whom the normal or brown segments were one-fiftieth of an inch long, and the white and abnormal segments were about half this length. To be mentioned also is Lesser's case of a child of four-and-a-half years, who was born without any hair, excepting the eyebrows, which were normal, and soon after the scalp presented the appearance of goose-flesh. The hair began to grow by the second year, the color being brown; the longer hairs were normal, while the short hairs were generally ringed. In this case there was also trichorrexis nodosa. Karsch has referred to a case in which the rings were not of uniform size; Crocker speaks of the moustache of a gentleman, aged thirty-nine years, which was also associated with trichorrexis nodosa; Richelot mentioned a chlorotic girl, in whom the hair became gray for two or three inches at its root, the parts beyond being unchanged. The chlorosis was cured by iron, and the hair-pigment was again

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secreted, so that after a time she had brown hair at the roots and ends, the center still remaining white. Smith, Spies, Landois, G. Simon, and Thomson also have seen this condition; Unna speaks of a case of white nails, in which there were also ringed hairs.

In the following illustrative case the patient was a man of forty-seven years of age, who was brought, about the middle of the year 1889, to my clinic by Dr. John A. Fell, of Doylestown, Pa. I obtained the following history: His paternal grandparents lived to be eighty-two and eighty-four years of age, respectively, and his father was eighty years of age at the time of his death. He had two paternal uncles, one dying at the age of sixty-five of pneumonia, and the other of dissipation; there were two paternal aunts, one of whom died at the age of seventy, from a fall down stairs, and the other at the age of sixty-five years. All had good heavy hair, which was of a dark-brown color, the man's father having very few gray hairs at the time of his death. Of the maternal grandparents, his grandmother lived to be quite aged; his mother lives still at the age of eighty years. Of three aunts, one died before the birth of the patient, and consequently he was not aware of her state of health; another died during parturition at the age of forty years, and the remaining one in old age. The uncles were quite aged at the time of their death, being seventy-eight and sixty-five, respectively. The members of this branch of the family were of a sandy complexion, their hair turning gray or white at an early age in every instance. The patient had three brothers living at the ages of fifty-six, forty-nine, and forty-two, respectively, and one sister at the age of fifty-five years. In all of these the hair had not undergone much change, although in the eldest there was a slight tendency to become gray.

The members of both families, from the grandparents down to the present generation, had always enjoyed the best of health, with the exception of the patient's mother, who had always been a sufferer from temporal neuralgia.

The patient was born in Pennsylvania, October 22, 1842, and was, therefore, forty-seven years of age. He had two sons living at the ages of twenty and sixteen, respectively, there having been a stillborn daughter between the males. His habits have always been steady; he was never a drinker, or otherwise "fast;" he had never suffered from gonorrhea or syphilitic infection. At the age of four years he had typhoid fever.

During the War of the Rebellion he was wounded on September 17, 1862, suffering a compound comminuted fracture of the fibula, caused by a Minie-ball. He was confined in a hospital for five months. He suffered from iritis in both eyes, the marks of the cupping still being visible in both temporal regions. Since the war he has been troubled with "army diarrhea." He was a moderate smoker.

The trouble for which he sought advice began in November, 1888. He complained of severe pains in his head (no particular portion), from which he was unable to sleep except in short naps; he could not describe these pains accurately. During the day he was almost unable to keep a hat on his head, although it was of light weight, because it felt as if a stone.

These symptoms continued through the winter and summer until July, 1889, about the middle of the month, when, on going to the mirror one morning to comb his hair, he found a white streak on the right side of his moustache. The following day this side of his moustache was perfectly white, the left side showing no tendency to change. Within the next ten days the hair, formerly dark brown, changed color in its entirety, and gradually fell out until there remained only about one-third of the normal amount. At this time he gave me two pictures, which illustrate the appearance of the man just before and just after the changes occurred.

He says that when he goes to bed he is sleepy, but that when he reaches the bed he lies awake for several hours.

On January 5, 1895, I found that there was no change in the color of the hair, except as regards the portion in the occipital region, where the new hair is of the normal color before this change took place. The color of the other portion remains as white as stated in the previous notes. The man told me that he had just about enough hair upon his face to make it necessary to shave once a week.

In bringing this case to the attention of the Society I wish to show plainly that this sudden blanching of the hair does occur. I cannot understand why so many of our medical teachers state positively, even to this day, that it is impossible. Kaposi said in 1874 that there was no such thing as sudden blanching of the hair, and that if the cases had been examined previously to this so-called change it would have been seen that the condition was gradually taking place—that is, that the pigment was losing its power of giving normal color to the hairs. This writer was not alone in this assertion, as such men as Haller, Barensprung, Reisner, and Hebra were counted in the list. I therefore feel great trepidation in reviving the subject at this time.

The condition of sudden change must certainly have been known, for if we refer to the words of Lord Byron they are certainly conclusive:

> "My hair is gray, but not with years;
> Nor grew it white
> In a single night,
> As men's have grown from sudden fears."
> (*Prisoner of Chillon.*)

The question remains, Why in one instance a person will have brown hair, or red hair, and in still another it will be black? This can only be determined by the number and size of the air-bubbles that are contained within the hair. In the black hairs we have the air-bubbles in minute quantity, while in those of brown hairs we have them in some slight increase, and they are found in larger quantities still in the red hairs. Taking these points into consideration and examining the refractive power of the hairs in this connection, we can readily understand how one person will have color differing from another. And the same explanation may be applied to this sudden loss of color in its structure. We have, perhaps, through nervous shock or some unknown cause, the collection of air-bubbles in large quantities throughout the entire hairy system, and, as the refractive power of the hair becomes changed, we are confronted with this apparent loss of color.

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Pfaff has stated that the pigment is not diminished until advanced age, but I am of the opinion that, except in albinos, the hair is never devoid of this coloring-matter. If the theory is correct that we have a loss of pigment in advanced age, how can we account for the return of normal color of the hair in very old persons? I do not think that reformation of pigment will ever take place, the color not being transmissible, but is due to the amount of air-bubbles contained within the hair.

If the statement be true that air-bubbles are the direct cause of this condition, it would appear that the cases recorded by Prentiss, in which one of the patients was treated with jaborandi and the other by pilocarpin for some intercurrent malady, and in whom the normal color of the hair returned, would tend to prove it; and the experiments of Pohlman with pilocarpin, in which he obtained the return of color in certain cases, and yet was unable to secure it in an albino rabbit, would add testimony in this direction rather than disprove it.

BLUE HAIR.—Many cases are recorded in which the change has been to a blue in those who are workers in cobalt-mines or who are employed in the manufacture of indigo; thus Borellus records the case of a man who had worked in the manufacture of indigo for twenty-five years, and whose hair had been blue for at least twenty years. In the case of Beigel, the blue color did not penetrate into the substance of the hair, but particles of indigo were deposited in an irregular manner upon the cuticle of the hair.

GREEN HAIR.—Green hair has been witnessed in those who are employed in copper-mines, as in the case of Petri, of a man of seventy-eight years, in whom the hair of the scalp was green, but in whom the hair became its natural color after washing in solution of caustic ammonia. Billi refers to a man with ringworm of the scalp, who was treated with corrosive sublimate and an ointment of yellow mercuric oxid, and in whom the hair became green. Another case is recorded by Orsi, of a railroad-workman who became suddenly green-haired, the green hairs being mixed with the gray; washing with ether, alcohol, or a dilute solution of potash did not affect it, but the hair on being cut grew out again gray. Clapton met with cases of green hair in copper-workers, and Wiltshire in those who were pin-makers. Joseph Frank also observed it. Rommel met a man of thirty years thus affected, but who had never worked in a mine. Borellus records the case of a young man who had green hair and green perspiration. Blue hair is also seen in those who work in brass. Leonard, Bouchardat, and Posner believe that the colors, both blue and green, are only superficial, and can be easily rubbed off; but Elbe, who has made a comprehensive study of this condition, states that this discoloration is not alone confined to the superficial part of the hair, but is intimately connected with its entire substance and cannot be rubbed off. The recorded cases disprove the latter assertion of Elbe.

YELLOW HAIR.—Smyly records the case of an infant of four months whose hair changed from its usual mouse-color to that of a reddish-yellow. The right eyebrow and the skin of these parts, as well as that of the right hand, were icteric; the pillow also was saturated with a reddish-yellow perspiration. Walter Smith tells of a boy in whom the lobe of each ear was of a sulphur-yellow, the downy hairs being also a bright yellow, while the hair of the head was brown. Many cases have been seen in which chrysarobin and chlorin gas have produced this same condition. Hydrogen dioxid, as is well known, is used to bleach the hair.

RED HAIR.—McMurray mentions a man having a hemihyperidrosis of neurotic origin and herpes zoster of the corresponding side, in which the hair of the affected side was of a light red, while that of the other was dark. Squire referred to a deaf-and-dumb boy of sixteen who had dark-brown hair in some places and auburn in others, and which to some extent resembled a tortoise-shell cat. Isoard describes a young lady, who was deaf and dumb from birth, and who every time she had a certain fever the hair, which was of a pleasing blond, became a dusky red; but that so soon as the febrile symptoms diminished the hair became natural. Alibert records an almost similar example; he also refers to a case in which after a severe illness a head of brown hair became one of bright red. Mention may also be made of the offspring of parents who are dark and who show a tendency to reddish hair. Congenital redness has been witnessed in members of the colored race. Leonard speaks of a young man who had brown hair, and which afterward became a positive red after a few years' residence in the hot climate of Sumatra.

BROWN HAIR.—Wilson cites an instance of a man whose white hair turned to a brown and back to gray again before his death, at the age of one-hundred-and-fourteen years. Belcher refers to a woman of ninety-five, who had been insane for fifty years, and who at her death had brown hair, there being not a single gray hair on her head.

BLACK HAIR.—Pyrogallic acid will make the hair black. Wilson records an example of the change to black in a woman of ninety-five, whose gray hair turned to black, and which became gray again before her death, at one-hundred-and-five years. The cases recorded by Prentiss are indeed unique: the one in which a woman of seventy-two was given pilocarpin, and the other of a woman of twenty-five who had taken jaborandi, in both of whom the hair became black. Sykes referred to a man of eighty-one, who had white hair which in

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a few years became black, and Bruley to a woman of sixty years, who had naturally white and transparent hair, which became jet-black four days before her death. Albert alludes to a person in whom the hair, from having been previously brown, became deeply black. Copeland remarks that in a number of instances gray hair has become black. Beigel refers to this change taking place after typhus fever; this was witnessed in a woman who had blond hair, which was replaced by coal-black hair.

PERIODIC CHANGES.—Warner records the case of a gentleman whose hair turned from black to white and back again three times in thirty years; the change from black to white was always rapid, while that in the other direction was slow and took some five years for completion. There would be a pause of some years when the color was normal, and then it would become white again. Reinhard gives the notes of a case wherein, in an idiot, the change was periodic, being from a reddish to a blond yellow. Rauber records a case of this change in an epileptic. Wilson saw it gray in winter and natural in color in summer.

RETURN OF COLOR.—Isdell refers to a man of sixty-two, with gray hair, and when eighty-three it was of its former normal color. Allanson Abbe speaks of a case returning from gray to quite dark, and even black in places, mingled with gray hair. Graves records many examples; one was blistered, and the hair came in black, and remained so. Another was bald on the vertex, forehead, and temples; this was blistered, and a growth of hair occurred in a ring. There was also a girl who had several bald spots remaining after a tinea; in this case common gas-water was used, and the hair regained its natural color. Still another was that of an army-officer who had been in the East. Sir John Sinclair mentions a Scotchman dying at the age of one-hundred-and-ten, in whom the hair regained its normal color. Joannet speaks of several instances, one of which was in a man who had been campaigning in the East, and in whom, upon remaining home for a year, the normal color of the hair returned; another patient took a sea-voyage for a year, with the same result. Hoffman records the case of a gentleman who was an incessant user of tobacco, and whose hair became gray; upon relinquishing the tobacco the hair again became black. W. O'Neil refers to a man who was gray and bald; three-and-one-half years after hemiplegia, and at the age of sixty-two, he noticed that dark hair was growing on the bald spots, and the gray hairs fell out and gave place to dark-brown hair.

I recall the case of a friend of about sixty-three years of age, whom I have known to be gray for at least fifteen years, and during the past year or two the normal black color of the hair is showing itself in the new-formed hairs.

MISCELLANEOUS.—Hauptmann refers to a case of a body which had been exhumed more than twenty years after burial, in which the hairs appeared red, whereas the hairs of the individual at the burial had been dark brown. Leonard speaks of a case in which, after death, a head of red hair changed in the course of a few hours to blond, and within thirty hours to gray.

Oesterlin has recorded a case wherein the hairs were more intensely pigmented toward their roots.

If any reported cases are not included in this list, I beg indulgence, owing to my inability to obtain data.

315 SOUTH EIGHTEENTH ST.

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## THE MENTAL STATE AS CONDUCIVE TO ORGANIC DISEASE.[1]

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THAT we are at present in the dawn of the age of preventive medicine is accepted by all thinking medical men; hence, the scientific facts sustaining this conviction need no elaboration and but brief mention in a paper of this kind. We recognize that as the accumulation of histologic and pathologic facts has gone on, the medical mind has grown more and more modest in its claims as to the curability of disease. This accumulation of facts has shown, first, that many diseases, from their very nature, are incurable, and at last the old egotism of ignorance entirely gives way when it is seen that all living organisms possess within themselves an inherent vital force, capable, to a large extent, of stamping out and keeping out the causes of disease. With the possession of this knowledge naturally comes the effort to conserve and further the action of this vital force by the development of these means, which are comprehended in the term *preventive medicine.*

While we have learned that death lurks not only in the cup, but in the bowl, the dish, and the milk-can, in the miasma of the night-air and the dust of the busy street, we have also learned that so long as the general health of the human body is maintained, its inherent vital force, through the agency of the phagocytes, is able, for the most part, to resist successfully the invasion of the germs of disease. This inherent vital force, this essence, which is the measure of the desire and ability to live, is doubtless the resulting strength and vigor of the combined sperm-cell and germ-cell at the time of conception, conserved, added to, or wasted, as it is variously affected by the million factors that influence its existence from the time of conception to old age. Every individual possesses it in a different degree, and its variations range all the way from the weaklings that die *in utero* or live an hour, week, or month after birth, to those high examples of physical and mental strength that carry on the work of the world.

The utility of this vital force may be impaired in a variety of ways. In the order of their importance they may be divided thus: First, ignorance of the mental and physical laws of right living. Second, mental shock and strain, and physical accident or exposure, which are unavoidable. For instance, a man living in perfect health in a malarial region breaks his leg. The lowered resistance of his vital force is overcome by the malarial germ, and he develops malarial fever. Mental shock may so depress the vital force as to invite the germs of disease and cause the body to fall an easy victim, or, failing that, may, by its impression on the nervous system, so disorder the bodily functions as to cause in time organic changes.

In the first class of the causes of lowered vital force (those due to ignorance of the moral laws) we need not dwell upon the fact of thousands falling victims yearly owing to the ignorance of themselves and others regarding the laws of physical sanitation and hygiene, but it is to the mental state and the position it occupies in the causation of disease through ignorance of the laws of right living that I wish to invite attention more specifically.

The human mind or brain-function probably never rests entirely, but it must have its equivalent relaxation in a healthful variety of subject, pleasurable change. The business-man, when prosperous, has the excitement of his affairs and his hours of ease and pleasure at his fireside. His drudging clerk, having no family ties, and possessing no artistic or social tastes of the higher order, must resort to cards, billiards, or worse, with others of his kind, while the ignorant negro laborer is limited for mental relaxation to the banjo, the dance, and the crap game, whisky, and the razor.

This mental relaxation, however obtained or whatever the form it takes, is absolutely essential to the healthy performance of the bodily functions. Conversely, high mental tension on any subject, continuing long enough, will cause disordered function, which will in time surely be followed by organic change. The business or professional man laboring under financial stress or overwork is a good example of physical breakdown from mental strain, but the sub-class of cases that I wish to speak of more particularly includes women who are born with, or through long years have slowly acquired, the worrying or fretting habit. This usually begins in childhood. Under the false but popular protection-system of training, egotism and selfishness are encouraged at the expense of self-reliance and self-restraint. I beg indulgence while I report two ideal cases that I have personally encountered, and which will, perhaps, better illustrate my meaning:

A woman, aged thirty-two years, married fourteen years, with one delicate child, a boy of thirteen years,

[1] Read before the Alabama State Medical Association, at Mobile, April 17, 1895.



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had always, as a child, girl, and young lady, been regarded as delicate, although she had never had any serious illness. Through childhood she had been indulged in every desire and protected from every irritation by an overfond and self-indulgent mother, and had never learned the meaning of self-restraint. As she grew up, her wants became harder, and finally impossible, to supply, and then the little irritations and deprivations began to cause fret, worry, and general mental suffering. Since her earliest recollection everything in the household had constantly bent to her wishes, and her mind had unconsciously taken the attitude that everything in the world should be made to do the same. Her egotism was developed; her view was distorted by this artificial breeding, until, like primitive man, she thought the universe was made for her. When she came in contact with the world, and life became more complex, the ordinary little irritations, against which she had been protected so unwisely, pressed so thick and fast that husband and mother were unable to shield her entirely, and her mind became gradually fixed in a fret upon her woes, the least of which was more important to her than the real troubles of other people.

This woman's husband was a physician, with a good income, but spending it all in his hopeless endeavor to supply her ever-increasing demands. For five years she was an almost helpless invalid from nervous disorder, with its inevitable train of headache, loss of appetite, sleepless nights, constipation, and indigestion. It should be remembered that all her life she had had all the creature-comforts, had been protected from every extreme of heat and of cold, her stomach had never been called on to digest plain food, and, as a consequence, for ten years she had been under the high mental tension of worrying about the thousand little disturbances of muscles, nerves, and digestion that inevitably follow a habit of little physical and mental exercise, fresh air, and refreshing sleep. After five years of almost complete invalidism her husband suddenly died. She was left sick abed, with a delicate child, an invalid mother, and without a dollar in the world.

What follows proves conclusively that this woman's sum of unhappiness was due solely to her mother's mistaken notion of kindness in never allowing her daughter to learn the necessary lesson of self-reliance, and having taught her instead to be dependent, selfish, and miserable. The mother thought she was doing the best, but she really was engaged in a most vicious and immoral form of self-indulgence; she was pleasing herself, but wrecking her daughter's future health and happiness. In spite of this life of selfishness, this daughter had many friends, was attractive, educated, and highly accomplished in music, painting, and needlework, all pursuits for which she had a natural talent, and which really, no doubt, saved her life.

When her husband died, and stern necessity stared her in the face, she had a hard struggle with her pride, and no doubt suffered a great deal mentally and physically; but whatever the effort cost her she made it, and when I saw her a year later she was keeping boarders, teaching music and painting, and making a good living for the three. Several years after that she was strong and well, had gained thirty or forty pounds, and did not have time to be sick.

This was a case of cultivated invalidism pure and simple, and, if the early conditions had been maintained for a while longer, some organic trouble would undoubtedly have followed—tuberculosis, general nervous exhaustion, or what not.

An ancient Eastern sage once said: "In the course of my long life I have often noticed that men were more like the times they lived in than they were like their fathers," meaning thereby that hereditary tendencies are overwhelmed by the influence of environment or training, when the two happen to work in opposite directions. And so in the case I have just reported. Naturally the woman, that is, her mental and physical heredity, offered the poorest possible material out of which to make an invalid. She was bright, forceful, and intelligent, with every inherent quality to make an energetic, useful member of society, which she finally became by accidentally escaping the usual final consequences of her early training.

I must beg further indulgence while I relate briefly another somewhat similar case, but in which the natural qualities were more favorable to the success of similar vicious early training:

This case also was in a woman, aged twenty-six years, married five years, with no children. The same protective system had been carried out, first by the mother and then by the husband, until all interest in everything but her own petty ills and irritations had been blotted out. At the time I first saw her she had the appearance of robust physical health, but was in a never-ending fret about her husband, her household cares, and the thousand functional disturbances of nerves, muscles, and digestion which constantly attend, as both cause and effect, such mental states as hers; a never-ending list of wants; reproaches for all, in place of thanks and kindly feeling; the interciliary ridges denoting extreme anxiety, high mental tension being never absent. This selfishness and total absence of all self-restraint and self-reliance were her masters, and although no physical disaster had yet been wrought, the result was inevitable.

Physical examination revealed no organic disorder, except a small cyst of the left ovary, which caused no inconvenience other than mental. This state of worry, of high mental tension, however, with its attendant train of bad physical habits, no exercise, no fresh air, no refreshing sleep, indigestion, headache, and constipation, and last, and most important of all, no healthful mental change, her mind on one eternal strain about herself, did the work, and five years later she died a physical and mental wreck. Seeing her again in consultation after this lapse of five years, I could

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recognize mental symptoms, such as fretting about trifles, which at first would have been amusing, except for the grave tendency, now grown most pitiable in the intensity of the mental anguish they caused. She had no waking moment for weeks prior to her death that was not filled with the most acute mental and physical suffering. Self-pity and most pathetic charges of injustice and neglect, which she felt to be just, she showered on all about her. These made up her mental agony, and the long-starved-out and abused and exhausted nervous system, crying out as physical pain in every final nerve-distribution, was none the less real. She died with a frown of reproach for all who had loved her and cared for her, and the cause of her general exhaustion, I am convinced, was primarily mental.

The post-mortem examination showed beginning tuberculosis in both lungs and slightly advanced interstitial nephritis. The cyst of the ovary had grown little or not at all; there was no organic change sufficient to cause death, which was due simply to an exaggeration of the mental symptoms present five years, or ten years, or twenty years before, to a point at which the exhausted brain and nervous system could no longer furnish life to the tissues.

These two women had the same vicious early training, and but for an accident in the environment of the former the results would have been the same. The first case was not naturally so bad as the second, because the woman had natural tastes that asserted themselves, and, combined with her maternal affections, took her out of her own thoughts for hours together, thus relaxing the nervous tension, smoothing out the brow, and giving the mind an occasional much-needed rest. It would only have taken a little more time, however, to balance these advantages, and she would have gone the same road as the second. The second woman had no inherent healthy force, no tastes, no talents, although pretending to all; no attractive qualities, and, consequently, no friends, and no affection for anyone but herself. Her mental tension never relaxed, except when overcome by sleep, and of that she had little; consequently there was nothing to obstruct the rapid progress toward nervous ruin.

To my mind these cases tend inevitably in one of three ways: either some acute organic disease steps in and ends the struggle; or this goes on unobstructed to the end, as in the second case; or something occurs that brings about a radical change of habit that effects a cure, as in the first case. Case I could have been cured at any time by a little patient, judicious teaching and intelligent help. Her case was due solely to ignorance on the part of her husband and mother. Case II, with a bad heredity and no redeeming qualities, would have been a harder case to manage; would have required, no doubt, a wise attendant and adviser from her natal hour.

In the management of these cases the intelligent physician can do much, if he will leave his saddle-bags at home, and study the mental condition closely, and rely on his ability as an educator. The "Weir Mitchell" rest-cure is successful in many of the milder cases. It puts away all medicine, and excludes all garrulous friends and over-anxious mothers; but, combined with this, after the patient's confidence has been gained, she should, I believe, be made to understand the mental source of her trouble. She must understand that not only is her co-operation necessary, but that the entire burden and responsibility of the cure are on her; that no miracle can be wrought for her; that there is no royal road to her cure; that her condition is the result of long training and self-indulgence in bad mental habits, and that only by long and patient work in the opposite direction can she be benefitted; that the mistakes and evils of her youthful training cannot be wiped out by a pill or a prayer devised by someone else, but that she herself must long and patiently atone. Those cases can be cured that, like the first case I have reported, have some good left to appeal to—if that something good is appealed to, and the conditions honestly explained, to the end of gaining the patient's confidence and enlisting her co-operation; maintaining the strictest of discipline over her, or rather helping her to do so herself, and showing a most honest sympathy and concern for her welfare, and finally throwing the entire responsibility for the success of the treatment on her. On the other hand, if she has not any stronger desire than amplifying her symptoms in order to revive the waning sympathy of long-suffering friends or to stagger the new doctor with the importance of her case, if she has no reason, tastes, or aspirations left to appeal to, or if she is over fifty years of age, and "sot in her ways," she and her friends will get more peace and happiness from a hypodermic syringe and a bottle of Magendie's solution than from anything else. Cases of this kind, which cannot be dealt with honestly, whose confidence cannot be gained nor co-operation enlisted; in short, those who have little reason and no will-power left, receive but temporary benefit from bread-pills, hypnotism, hoodooism, charms, fetishes, and prayers. Such treatment, in fact, has made these cases what they are.

The two cases I have detailed are typical of the conditions I wished to illustrate, but, like all pure types, are seldom met with. By far the most common form of this acquired or cultivated state with which we have to deal is a variable and ever-varying combination of the two. In brief, it is a state of high mental tension, mental overwork, brought about by a selfish, worrying habit; worse at one time, better at another, as it is influenced by the thousand healthful and unhealthful factors of en-

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vironment, but, on the whole, gradually growing worse as the years of youthful frivolity, change, and excitement are replaced by the more monotonous period of middle life. This state persisting, with its accompanying indoor existence, poor air, poor exercise and sleep, dyspepsia, headache, constipation, and no mental relief, the rule is constant; the weakest point gives way to organic disease, or the patient succumbs to pure nervous exhaustion. Again, a monotonous home-life is often responsible for conditions that have in turn been charged to perversity of the liver, uterus, or ovaries. Housewives who suffer from the persistent waywardness of husbands and children, from poverty, confinement, and hard work, with no hope of relief or pleasurable mental change, in ten, fifteen, or twenty years go the way of nervous wrecks, and many wonder why.

These cases are peculiar to women, not because they have ovaries, but because they are so often the delicate hot-house pets of mothers or the unconsidered and unpitied slaves of men. In one case the girl is often completely under the vicious influence of an indulgent and ignorant mother. Her brothers are never beyond a certain age. Neglect a boy's training in self-reliance and develop his egotism to the utmost, and one game of marbles or ball, perhaps, will knock it all out of him. The boy, sooner or later, always has companions who estimate him at his real value, and force him to accept it. They teach him self-reliance as well as self-restraint; they inure him to personal irritation; he sees the world as it is, and early learns that biologic principle that the individual must mold himself to his surroundings.

The girl, brought up under the protection-system, thinks the surroundings can be cut to fit the individual, and working, or rather fretting, under this hypothesis, she grows up unhappy and unhealthy, and with her ovaries threatened by every new doctor she calls. As I have mentioned, this state of high mental tension is often acquired by business-men who have allowed their affairs to grow beyond their strength to handle. Such men, ignorant of or indifferent to the laws of mental hygiene, can, by ignoring the loud clamors for rest for the weary brain, bring about that state of low physical resistance so inviting to infectious or organic disease. The physician's duty in all these cases is almost entirely educational. Such cases in men are easily treated, the condition being obviously a late acquirement. A few months of mental rest will effect a cure.

To an unfortunate woman, whose state is the result of early training, worry is more nearly natural, and to attempt to cure would be to attempt to bring about an actual revolution in her character, and those only can be cured who have some reason and understanding left to appeal to. Let such a woman be told that she has nervous prostration, but let it be explained to her what is meant by that; let her be shown its cause, and be impressed with all the sympathetic eloquence at the physician's command that there is no royal road to her cure; that her improvement will be speedy or slow in proportion as she recognizes her condition; that her physician and attendants can only remind, encourage, and direct, but not cure. She must be warned that this fixed habit, the result of years of bad mental hygiene, can be changed only after long and patient work in developing and reviving the latent and atrophied forces that still remain. Cases that have passed a point where reason, will, and understanding have been all but annihilated may eke out a tolerable existence with anodynes in a continual warfare with the weaknesses that have flourished too long.

To benefit these cases in the line I have indicated there is obviously necessary a state of confidence in the physician, and a faith in the wisdom of his view of her condition. This is difficult of attainment at all times, and after the patient has reached a certain age, or her condition a certain degree, it passes all possibility. Such cases there are, and we have all seen them, who, inheriting this tendency to worry, this lack of will-power and self-reliance and reason, and having been subjected to the ignorant and vicious protection-system of early training, followed by a procession of female sympathizers to encourage every little selfishness and physical and mental ill, and accompanied by medical treatment as comprehensive as it is vague, ranging all the way from bread-pills and asafetida to ovariectomy, have at last reached a point where they have not one force left with which to cope with the tenderest possible conditions of life. The drawn mouth, the emaciation, the quick, nervous eye, the interciliary ridges and furrows, together with the never-ending list of complaints, will recall cases that have fallen victims to infectious or organic disease, or have faded away as simply unfit to survive.

The prophylactic measures that the foregoing ideas suggest obviously comprehend certain advice to the mother of each newborn babe that opens a field too broad for me to enter and a responsibility too great for me to assume.

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***To Prevent Thirst after Celiotomy*** HUMISTON (*American Journal of Obstetrics and Diseases of Women and Children*, July, 1895, p. 89) has the patient drink for three days previous to the operation a pint of hot water an hour before each meal and also on retiring, the last pint to be taken three hours before the time set for operating. In this way is restored to the stomach the large amount of fluid lost by the free catharsis. This method has been followed in twelve cases, the patients presenting a moist tongue, active renal function, and freedom from thirst.

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# CLINICAL MEMORANDA.

## THREE CASES OF CHRONIC ABSCESS OF THE BRAIN.

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CASE I.—William E., thirty-one years old, white, ranchman by occupation, was admitted to St. Luke's Hospital on the evening of January 22, 1895, with supposed typhoid fever. It was impossible to obtain any facts in regard to the family history, and the patient's mind was so clouded that the personal history was very imperfect. He had led a very irregular, dissipated life, had indulged in alcohol for a number of years, and had contracted syphilis four years previously. It was learned, after his death, from a brother who had come from a distance, that several months before he had received a blow on the right side of the head which rendered him partially unconscious for some time, and that after recovering from the immediate effects of the blow he returned to work on a ranch, but frequently complained of dizziness and great weakness. It is important to remember that this information relating to the blow on the head was not given until after the patient's death, and was obtained by the brother of the patient from the friends of the sick man with whom the latter was staying at the time of the injury.

The only history that I could obtain on the patient's admission to the hospital, other than a meager account of his habits and syphilitic infection, was that he had suffered from headache for about two months. About the middle of December, 1894, his headache became intense, almost constant, and the pain was localized on the right side of the head, principally in the frontal region, but occasionally extending back to the occipital. Soon after this he was confined to his bed in an out-of-the-way place, where he could obtain no regular medical attention, and up to the time he was brought to the hospital he had remained in this condition, suffering from headache, loss of appetite, and great prostration. During this time he had emaciated rapidly and was supposed by his friends to be suffering from typhoid fever. To get him to the hospital it was necessary to bring him a distance of thirty-five miles, during intensely cold weather, in a wagon that was only partially covered. He was at first placed under the care of the general medical attendant, but, on account of the patient's severe headache and paresis of one side of the body, I was asked to see him in consultation with Dr. Sewall, the attending physician at the hospital at the time, and Dr. Munn, who was called in because it was found impossible to pass a catheter into the bladder on account of an old stricture.

An examination was undertaken at about 10 P.M., two hours after the patient was brought to the hospital. When left alone the man lay in bed, breathing quietly and apparently sleeping; on being spoken to he would rouse up for a moment and answer a question, but mental concentration was found to be impossible. His attention could only be secured for a few seconds at a time, when he would again relapse into a semi-conscious condition. The left arm and leg were much weaker than the right, with a tendency to flexor contraction of the arm at the elbow. The face did not seem affected. The right knee-jerk was increased; the left greatly exaggerated. Ankle-clonus was absent on the right, but decided and continuous on the left. The right plantar reflex was very slight, the left absent. The right cremasteric was present, the left absent. The extensor reflexes of the forearms were normal on the right; exaggerated on the left. The biceps and triceps reflexes were normal on the right; exaggerated on the left. On account of the man's mental condition it was found impossible to test the acuity of vision, but he was found completely hemianopic in the left half of each visual field. All of the external and internal ocular muscles seemed to be about normal, except that the pupils responded slowly to light. Careful test was made for Wernicke's pupillary reflex, but this was not found.

All forms of sensation seemed to be lessened or almost destroyed in the left arm and leg and throughout the left side of the trunk, but slight irritation of the left side of the face was felt; sensation was, so far as I could determine, normal on the right side. Hearing with the watch, R. = 1/2; L. = 1/4; the tuning-fork was heard better with the right than with the left ear. The man was able to smell asafetida with either nostril, but the mental condition was too much obscured to compare the acuity of smell on the two sides; neither was it possible to test satisfactorily the sense of taste. Dynamometer: R. = 112; L. = 0. On further examination the left arm was found firmly adducted to the chest by contractures of the pectoral muscles, and this continued during sleep. Both optic nerves showed slight swelling, with considerable atrophy, narrowing of the arteries, slight tortuosity of the veins, and almost complete obliteration of the normal line of demarcation between the nerve and the retina. The swelling of the optic disc amounted to one diopter in each eye. The temperature was 97.4°; the pulse 40; the respirations 16.

There was a very tight stricture of the urethra, and, on account of the difficulty of inserting a catheter, Dr. Munn fastened one in the bladder. The urine contained pus, albumin, and renal casts.

The man was placed upon inunctions of blue ointment and rapidly increasing doses of potassium iodid, on the supposition that his brain-lesion was due to syphilis. The next morning it was found almost impossible to arouse him. The temperature was 97° in the right axilla and 98° in the left; the pulse 52; the respirations 12. By noon unconsciousness was complete and beginning Cheyne-Stokes respiration was apparent. At 1 P.M. the temperature in the right axilla was 97°, in the left 98°; the pulse 46; the respirations 16. The left arm and leg had become rigid, and the man soon passed into a state of deep coma, and gradually sank, and died on the morning of the 28th, about five days after I first saw him.

During the first three days of the patient's stay in the hospital his temperature was subnormal by 1° or 1.5° on the unaffected side, and about 0.5° on the paretic side, whose muscles were contractured and rigid. Pulse and respiration were slow, the latter at times being only ten per minute. During the first three days the pulse was never found above 50, the average frequency being about 44, although occasionally it was as low as 40. At no time was there complete paralysis of the arm or leg,

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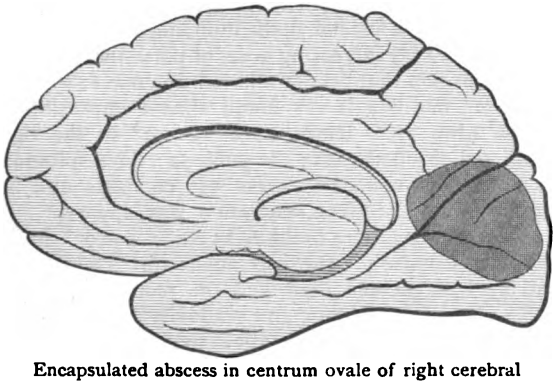
but both were in a paretic condition, and the muscles rigid and contractured, and this condition increased up to a day or two before dissolution. On the fourth day the temperature reached normal, the pulse 64, the respirations 20. On the fifth day the temperature was 100.4°, the pulse 136, the respirations 48. On the morning of death the temperature was 104.6°, the pulse uncountable, and the respirations 56.

An autopsy was held six hours after death by Drs. Axtell and Freeman. The dura was normal in appearance and in attachment to the bones, and no adhesions between it and the thin membranes existed. The superior longitudinal sinus contained a soft white clot in its anterior portion. The coagulum was an inch-and-a-half long and non-adherent. All the other sinuses were free from clots or other evidences of disease. On removing the dura the cortical veins over the left convexity were found to contain dark non-adherent clots. All the cortical veins were distended with fluid blood. No evidence of disease of the pia was apparent. The walls of the right middle cerebral artery presented several thickened areas before giving off the nutrient arteries to the great ganglia. On exposing the interior of the right cerebral hemisphere by several longitudinal incisions a large abscess, oblong in shape, about two-and-a-half inches in width, was found encapsulated in the centrum ovale of the temporal and parieto-occipital region. The purulent accumulation extended forward from the cortex of the posterior portion of the occipital lobe to a point half-an-inch or more in front of the parieto-occipital fissure. About a quarter-of-an-inch of brain-substance intervened between the abscess and the posterior horn of the lateral ventricle. Neither the ganglia nor the cortical substance of the brain was directly invaded by the abscess. The capsule was dark, almost black, quite thick and had not ruptured. The pus, thin in certain portions and rather thick in other places, especially near the walls of the capsule, was light olive-green in appearance, and of a very offensive odor. The brain-substance was softened from the posterior portion of the

FIG. 1.



Encapsulated abscess in centrum ovale of right cerebral hemisphere.

occipital lobe forward to the region of the insula. The softening included both the cortical and the white substance, and to some extent also the great ganglia. The left hemisphere, the ventricles, the cerebellum, pons, and medulla showed no evidence of pathologic change. The bones of the nose and ear, on careful examination, were found free from disease. Unfortunately the body had to be shipped a considerable distance for burial and permission could not be obtained to examine any organs besides the brain. I neglected to have culture-tests made with the pus.

The difficulties in the diagnosis of the exact nature of this case, even if aided by an accurate history, would have been very great, but in the absence of this important aid they proved insurmountable, although, on learning, after the patient's death, the history of the injury to the head, I was not surprised to find an abscess at the post-mortem examination.

The three pathologic conditions discussed in attempting to reach a diagnosis were thrombotic softening, tumor, and abscess. The history of syphilis was in favor of thrombosis, but the severe headache, extending over a period of one or two months, the rapid emaciation, and the slow pulse and respiration seemed sufficient to exclude such a lesion. Normal or subnormal temperature may be associated with slow softening following occlusion of a cerebral vessel. From a number of observations, extending over a period of several years, I have been led to conclude that a sustained temperature of from a half to one degree higher on the paralyzed side than on the unaffected side, several weeks after the paralysis has become manifest, points to an irritative lesion of the brain as the cause of the paralysis. The choking of the discs was conclusive evidence of increased cerebral pressure, and I did not hesitate to exclude a vascular lesion from this symptom alone. Gowers states that choked discs may sometimes follow embolic occlusion of an artery, but such an occurrence must be exceedingly rare, as I have not observed it, although I have for more than fifteen years carefully and repeatedly examined the fundi of the eyes of every patient coming under my observation suffering from embolism of a cerebral artery.

The history of syphilis and of severe headache was in favor of a syphilitic growth, but the swelling of the optic discs was less than is commonly found associated with tumor. The marked emaciation and the low typhoid state could not be accounted for by the presence of a cerebral growth, but such phenomena are frequent results of renal disease, and these had their origin in this case, in all probability, in the stricture of the urethra and a sequential cystitis. Low temperature is common in tumor or abscess of the brain, and I have not infrequently found the temperature higher on the paralyzed side in hemiplegia of several months' duration, caused by a growth in the brain. In the absence of any obtrusive cause of suppuration a provisional diagnosis of a syphilitic tumor of the brain was made, and the patient was treated accordingly. I have rarely found muscles that were paretic, or almost completely paralyzed, become rigid and remain so for several days from the irritation of a cerebral growth, although I have observed this condition in several cases of abscess of the brain. The rigidity of the weakened muscles was well marked in this case, and it increased in intensity until a few hours before the patient's death. After obtaining, subsequent to the patient's death, the history of a blow on the head and an account of the symptoms that followed, including mental dulness, a confused feeling, and severe pain in the head, together with dizziness and emaciation, I was not surprised at the autopsy to find an abscess instead of a tumor.

The right lateral homonymous hemianopia, hemi-

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paresis, and partial hemianesthia, without the involvement of the other special senses, enabled me quite definitely to locate the lesion. Had an abscess been diagnosticated on the patient's admission to the hospital, his extreme prostration and renal and cystic complications precluded any hope for relief from evacuating the contents of the abscess.

The probable source of infection was an injury to the tissues of the scalp, although this is merely speculative in the absence of a more thorough post-mortem examination, which was not possible under the circumstances.

CASE II.—John S., seventy-five years of age, white, a widower for a number of years, born in Ireland, by occupation a laborer, of large physique, resident in Colorado since 1870, was admitted to the Arapahoe County Hospital, January 22, 1895. The family history, so far as I was able to learn, was unimportant. His health in childhood had been good, and he had had no serious illness until his seventieth year. Earlier in life he had indulged rather freely in alcohol, but only rarely during the preceding five years. He denied syphilis, but admitted an attack of gonorrhea twenty years ago. He received a bullet-wound in the left shoulder in 1861 while in the army. With the exception of the time during which he was disabled on account of the wound he said that he was never sick a day in his life, until twelve years ago, when he was kicked on the left shin. The injury was attended with great pain. Later a large ulcer developed, which nearly healed at times, but for a number of years he had had a large open sore on this leg. One month before coming to the hospital, however, the ulcer completely healed, leaving a large, dark-colored, rough cicatrix which was very tender upon pressure. For some years the man had suffered from vague rheumatoid pains in the legs, especially in the knees and ankles, and in the entire left leg he had had a feeling of numbness for about five years. This leg seemed to him awkward, but he was able to walk with the aid of a cane. For a number of months there has been partial inability to control the bladder, and frequently he would soil the bedding and his clothes, and had to evacuate the bladder several times during the night. The patient says that he was struck over the lower portion ot the back and nates by a cable-car early in January of the present year. He was able to rise and walk immediately afterward, and he did not think that he had sustained much injury, although pressure over the lower portion of the back gave him considerable pain. From the time of the accident he lost all control over the bladder, and the left leg was very weak. The left arm had been noticed to be weaker than the right. The patient had been obstinately constipated for a number of months. The right pupil, which was widely dilated and immobile, had been so for a number of years in consequence of an injury to this eye received eleven years before.

On examination, January 22, 1895, it was found that the man was unable to stand on account of the weakness of the left leg, and the examination had to be conducted while the patient was lying in bed. An old scar was observed on the anterior surface of both legs below the knees, and was evidently the result of old ulceration. The arteries of the extremities were hard and unyielding. The left leg was very weak, but could be moved at all the joints, although the power was feeble and the movements were ataxic. The muscles of the ankle of the left leg were weaker than those of the knee, and the latter weaker than those of the hip. Muscular power seemed to be fairly good in the right leg. The left arm was weaker than the right. Dynamometer: right, 100; left, 40. There was slight rigidity in the left arm, with a tendency to hold the arm close to the side of the chest and flexed at right-angles at the elbow. The mental condition seemed feeble; concentration of mind was very difficult; and it was almost impossible to keep the attention on one subject for more than a few minutes at a time. There was considerable loss of sensation throughout the left side, apparently more pronounced in the arm and leg than in the face. The knee-jerks were present, the left slightly increased, while the right was less than normal. The plantar reflexes and the tendo-Achillis reflex were present; ankle-clonus was absent. The cremasteric and the abdominal reflexes were absent. The external ocular muscles seemed to act normally. The right eye was cataractous, the pupil being widely dilated and not responding to light or in accommodation. The left pupil was very small, and did not respond to an active mydriatic, so that an examination of the fundus of either eye was not possible. There was apparent left lateral hemianopia of the left eye; the fields of the right could not be tested on account of the presence of the cataract. The mental hebetude was too great to permit of an accurate examination of the special senses.

The temperature was 98.2°; the pulse 60; the respirations 24. During the first week of the man's stay in the hospital his temperature varied from 98° to 99.2°, usually being about 98.4° in the morning, and from 98.8° to 99° in the evening; the pulse ranging from 54 to 90, only falling to 54 on one occasion, to 60 on three, and to 66 on two, the usual variation being from 72 to 88; the respiration varied less than the pulse, ranging, except on two evenings, from 18 to 20. A record of temperature, pulse, and respiration was made twice daily. During this week the man gradually failed both mentally and physically. He soon lost all continuity of thought, and his mind was a complete blank for any event of recent occurrence. He ate but little, emaciated rapidly, and passed the discharges from the bladder and the bowels into the bed. During the second week, from January 29th to February 4th, there was continued gradual failure. The temperature ranged from 98° to 99.4°; the pulse between 60 and 80; the respirations between 18 and 20. During the third week prostration increased rapidly, and the mind became a total blank. The temperature was a little lower than during the preceding week, rising above 98.4° only once, when it reached 100° one evening, but most frequently it registered 98°. The pulse varied from 70 to 96, averaging about 80, and was weak and compressible; the respiration ranged from 20 to 36. The rigidity of the left arm and of the leg-muscles became more pronounced. On February 12th the patient passed into a deep comatose condition, the muscular rigidity began to relax, and at 5 P.M. the temperature was 99°, the pulse 100, the respirations 24. The next morning at seven o'clock the temperature had reached 101.4°, the pulse 120, the respirations 40; and at 5 P.M. the temperature was 105°, the pulse 130, the respirations 36. Death took place during the night.

The post-mortem examination was made about twenty hours after death by Dr. Leonard Freeman,

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pathologist to the hospital. The dead-room was cold and the body thoroughly frozen. Unfortunately, only the contents of the cranial cavity were examined. The adhesion of the dura to the bones was not abnormal. The membranes and the cortical surface of the brain, on both the convex and basilar surfaces, showed no evidence of disease. The vessels were atheromatous, but not to a pronounced degree for one seventy-five years old. On sectioning the left cerebral hemisphere no gross pathologic change was found, but in the right hemisphere an encapsulated cavity, about two inches in diameter, containing a foreign substance presenting an appearance almost identical with orange water-ice, was found in the centrum ovale of the parieto-occipital region. The greater portion of the pathologic process had taken place in the occipital lobe. The lateral ventricle had not been broken into, but only a very thin partition of brain-substance intervened between the cavity and the posterior horn of this ventricle. None of the cortical substance of the brain had been directly involved by the foreign substance, which was so situated as to exert pressure on the right internal capsule. Dr. Bane, at my request, made a drawing of the cavity, *in situ*, before its contents were allowed to thaw.

FIG. 2.

1. Abscess. 2. Posterior horn of lateral ventricle.

No evidence of gross disease was found in any other portion of the brain. In the frozen state it was impossible to determine whether the lesion was a cyst or an old abscess. The melted contents of the cavity presented the appearance of a watery straw-colored liquid, and seemed to be the product of a cyst, but the microscope showed numerous granular and broken-down pus-cells, proving the lesion to be a chronic abscess. There was no odor. After warming the brain the right hemisphere was found to be much softer than the left, but the extent of the ante-mortem softening could not be determined, as brain-substance softens so rapidly on being warmed after it has been frozen. The bones of the ears showed no evidence of disease.

Although I had had an opportunity of studying this case for a period of three weeks, the presence of an abscess of the brain had not been suspected before death, and the discovery of one at the autopsy was a great surprise to me. The age of the patient, the atheromatous condition of the radial arteries, and the comparatively sudden onset of the paretic condition, with the subsequent symptoms of cerebral softening, led me to diagnosticate arterial thrombosis. The temperature was normal or nearly so, as is common to both abscess and slow necrotic softening taking place after occlusion of a cerebral artery. I regret that I did not make a careful comparison of the temperature in each axilla. It is probable that the temperature would have been found higher on the paralyzed than on the unaffected side. In hemiplegia from necrotic softening it is likely that this difference of temperature in the two axillæ does not exist to a marked degree, and when present is not persistent, except possibly when the lesion causing the softening is an irritative one, as sometimes happens in acute softening from obstruction of large vessels. The history of a fall did not militate against thrombosis, as the head did not appear to have been injured at the time, and it is not infrequent for occlusion of a cerebral artery in the aged to be preceded by increased physical exertion, which may or may not be a contributing influence in the final closure of a narrowed vessel. As it was impossible to obtain a view of the ocular fundi, the condition of the discs could not be ascertained. The absence of headache was in favor of a vascular lesion, and against abscess or tumor.

In a man seventy-five years of age, presenting a hemiplegic lesion, in the absence of a growth or the history of one in other portions of the body, the presence of tumor of the brain will not be suspected.

While no age is probably exempt from abscess of the brain, the infrequency with which it occurs in extreme old age made it improbable that I should meet with it in a man seventy-five years old. Of 223 cases of abscess of the brain, only one was found at the seventieth year or over. (Gowers.) There was no discoverable cause for cerebral suppuration. There was no discharge from the ear and no history of any. The nose seemed to be free from infective material, and no evidence of a purulent accumulation in the thoracic or abdominal cavity was detected. In reviewing the history of the case after the autopsy revealed an abscess of the brain, it has occurred to me that the large open sore on the leg might have furnished the portal of entry for the infective material with which the brain-substance became infected. The ulcer had given trouble for a period of twelve years, but it had entirely healed, the man said, a month before he came to the hospital. The appearance of the cicatrix indicated that the sore had been healed several months. It is probable that as his memory for recent events was greatly impaired on his entering the hospital, events that occurred months or years before appeared to his mind of a later date. This loss of time-sense is common in dementia, especially of the senile variety. We must remember that the left leg had appeared numb, weak, and awkward for a period of five years, and for a number of months the man had lost partial control of the bladder. The capsule of the abscess and its contents indicated that several months at least had elapsed since the cerebral suppuration had begun. What part the blow upon the lower portion of the spine had to do with causing the abscess it is impossible to say. No tenderness of this portion of the spine was detected at the time of my examination. If the blow was received only two weeks before the man entered the hospital, as he states, it is quite evident that it played no part in the causation of the cerebral suppuration, but, as

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before stated, his time-sense for recent events was impaired and no reliance could be placed upon his statements relating to time, especially for things of comparatively recent date.

Had the diagnosis of cerebral abscess been made on the patient's admission into the nervous wards of the hospital, I should have urged a surgical operation, as no hope could be entertained without the evacuation of the abscess, although the extreme age and prostration of the patient would seem to have precluded almost the possibility of recovery under such unfavorable circumstances.

CASE III.—E. P., a male, thirty-seven years of age, born in Germany, a tailor by occupation, had lived in Colorado four years. The family history shows tuberculosis, renal and cardiac troubles in several members of the family. The patient's health in childhood was fairly good; he suffered from measles and scarlet fever when a child, but never had any ear-trouble. His habits have been bad; he has been a free drinker; has suffered several times from gonorrhea, and contracted a hard chancre about ten years ago. He never received a blow upon the head or a severe blow upon any portion of the body, so far as he knows. About eighteen months before I saw him he suffered from a severe "cold," and this was followed by prolonged purulent bronchial expectoration. Soon after this he began to complain of headache. His general health failed; he lost health and strength, and his mental power was weakened. He consulted a physician, who, on account of his syphilitic history and head-pains, treated him with potassium iodid for a number of months. His head-pains greatly lessened, but did not entirely subside, and he continued rather weak. His appetite was poor and vacillating, his bowels were constipated, and he was unequal to his work, both mentally and physically. He found it an effort to perform the merest routine duties of his shop, and it was distressing to him to make any mental effort. He continued in this condition for some fourteen or fifteen months, when his headache again increased, mental confusion became greater, and he felt a sense of physical prostration continually. Sleep was poor; he passed restless nights, became very much emaciated, and the headache was at times distressing. The man was again treated for syphilis of the brain, and again temporarily, but only slightly, improved in health. He became drowsy and had to discontinue his work. With the exception of taking occasional short walks, he remained in his room the most of the time for two or three days. After passing a rather restless night he arose in the morning to dress himself, but before he had completed his toilet he fell to the floor, and when found, several hours afterward, he was mentally confused and unable to rise.

I saw the man a few hours later, when he was lying quietly in bed, apparently sleeping. There was a little stertor in his respiration; his temperature was about one degree below normal in the right axilla and half a degree in the left. The pulse was 60, full and strong; and the respiration was 12 per minute. He was easily roused from his soporose condition, and seemed for a moment to appreciate what was said to him; but if left alone, he almost immediately relapsed into an unconscious state. The left arm and leg were almost completely paralyzed, the paralysis being more pronounced in the leg than in the arm, but the face did not seem to be affected, and the tongue was protruded in the median line.

It was impossible to test the general sensory phenomena, but, so far as I was able to determine, sensation was less acute on the left side than on the right. Both knee-jerks were increased, the left to a greater degree than the right. The plantar reflexes were absent. Ankle-clonus was slight on the right and well pronounced on the left. The cremasteric and abdominal reflexes were barely perceptible on the right side and absent on the left. The pupils were equal and rather widely dilated, and reacted but feebly to light. There was no paralysis or paresis of the external ocular muscles. Both optic nerves were slightly atrophied, with some swelling of the discs, greater on the right side than on the left. There was apparent left lateral homonymous hemianopia, but it was difficult to test the visual fields accurately on account of the blunted mental state of the patient. The urine was free from albumin and sugar, and no râles were detected in the lungs. Headache was not spontaneously complained of, but on rousing the man and asking him if he had any pain, he said "yes," and pointed to his head. The stupor gradually deepened into coma; the temperature continued subnormal for several hours; respiration rapidly increased; the pulse became frequent; and death took place twenty-four hours after the first manifestations of hemiplegic symptoms. The temperature before death was 103° in each axilla.

The autopsy, which was held a few hours later, revealed an encapsulated chronic abscess in the centrum ovale on the right side. The abscess was oblong in shape, about two-and-a-half inches in its long diameter by two inches in its transverse. It was surrounded by dense fibrous walls, and extended posteriorly well into the occipital lobe, and anteriorly into the centrum ovale of the tempero-sphenoidal and parietal lobes. The cortex of the brain was not directly involved, nor was the internal capsule, but a thin layer of brain-substance intervened between the lateral ventricle and the abscess. The pus was thick, greenish, and offensive. The entire right side of the brain presented an edematous appearance. No pathologic changes besides these were found in the brain. On examination of the mastoid cells and the interior of the petrous portion of the temporal bones no evidence of disease was discovered. Permission was not granted to examine any other portion of the body.

It is impossible to discuss the probabilities of arriving at a diagnosis during the time of the formation of the abscess, which possibly dated back some fifteen or eighteen months before the patient's death, or about the time of the beginning of the head-symptoms following a purulent discharge from the lungs. When I first saw the man, a few hours previous to his death, the diagnosis lay between a vascular lesion, tumor, and abscess. The eye-changes were sufficient to exclude a vascular lesion as a cause of the prolonged symptoms. The syphilitic history and the marked amelioration of the symptoms from the use of potassium iodid pointed to a tumor of a syphilitic nature, but the choked discs presented less swelling than is commonly observed in cases of progressive tumor of the brain. I have previously reported[1] a case whose history was somewhat similar to that in this case. In that patient the swelling of the

[1] THE MEDICAL NEWS, March 10, 1894.

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optic disc was well marked, a tumor was diagnosticated, and the autopsy revealed the presence of a growth, connected with which was a small focus of suppuration. Nothwithstanding the strong probabilities of a syphilitic growth, the history of a purulent bronchial discharge immediately preceding the development of cerebral symptoms and the slight swelling of the optic discs determined me to venture the diagnosis of chronic abscess.

On first seeing the patient an operation was out of the question, as he was then dying from edema of the brain, which had resulted from the existence of the abscess. A post-mortem examination of the lungs would have been interesting and might have aided in determining the source of the infection, but unfortunately a thorough investigation was denied.

The three abscesses, an account of which has been given in this paper, all occurred in the right cerebral hemisphere, all occupied nearly the same position in the centrum ovale, were all attended with left lateral homonymous hemianopia, with great weakness of the left arm and leg, the loss of power being greater in the leg than in the arm, the face escaping almost entirely, and with sensory impairment on the left side. The infective material in two was probably derived from distant suppuration, and in one from an injury of the scalp, although the incomplete post-mortem examination renders this uncertain.

## THE CONTINUED FEVER OF ENDOCARDITIS.[1]

BY WILLIAM S. DISBROW, M.D., PH.G.,
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THE subject to which I desire to call attention presents points of interest that I consider worthy of note, on account of its rarity (judging from reported cases), the difficulties associated in its diagnosis, the length of time it involves, and the various views held by different diagnosticians of recognized reputation.

The first case of which I find record is that of Dr. Mullin, of Hamilton, Ont., quoted by Professor Osler in his report of a case under his care, and which is in many respects closely similar to the one that I desire to report.

In June, 1892, I was called to see a woman suffering from some slight pharyngeal trouble, but was unable to account for the rigors and fever with which it was associated, all out of proportion to what would be expected, even assuming the throat-condition to be other than benign in character. The patient had for three months previously been under the care of a physician of long experience and of sterling worth, who had recognized that she had valvular heart-disease, but owing to his illness and death I became the medical attendant. She had at the time of my first visit a slight pharyngo-laryngitis, which soon yielded to proper treatment; but I was surprised to find that the fever continued, together with marked debility, greater in degree than would be anticipated in such an apparently trifling illness.

On further inquiry it was learned that the woman was forty-five years old and married. Her father had died from pyemia, secondary to an accident to one of his fingers, and her mother had died at the age of fifty-six years, of pulmonary tuberculosis, secondary to pneumonia.

About twelve years previously the patient had had a severe attack of articular rheumatism, from which she suffered for several weeks; but from that time had been in fair health, with the exception of more or less pain in various joints of the body and stomach, and what had been diagnosticated as gastralgia by Dr. Janeway, of New York, whom she had consulted; he at that time recognized the valvular trouble, but considered it as the sequel of her rheumatism, and that it was not accountable for the pain from which she was then suffering.

The fever continuing—constantly for days, then intermitting—latent tuberculous trouble was suspected, and a careful physical and bacteriologic examination was made, but nothing was found to indicate this as being the cause of the fever.

Malarial toxemia was next considered, owing to the character of the fever; the chills, which had become more numerous than before, sometimes recurring daily, and at other times being of a tertian type; the temperature ranging from 102° to 102.5°, but without intermission, occasionally in the morning 102° or 103°, but during the afternoon lower. Treatment for malaria was instituted, and pushed to the utmost limit for about a week, but with no result, the fever showing no appreciable change, while the chills, though slighter in character, were not controlled.

The symptoms having thus continued for about a month without improvement, Dr. Lippman, of New York, was called in consultation, but could find no apparent cause for the condition.

Meanwhile the patient was able to be about, and had sufficient strength to walk, and even to take short rides into the country. It was thought advisable to send her out of the city, and this was done. Mt. Pocono was selected as being the most suitable place, but after staying there for about three weeks she returned, but without improvement. She then for some time resided at Lakewood and also at Asbury Park, N. J., but with no resulting improvement, except a slight gain in appetite, and an altered mental condition, which had been tried to its utmost, and discouragement was now displacing hope.

In August the woman complained of pain in the shoulder and ankle, which were slightly swollen, and soon more marked rheumatic symptoms developed, with an increased pulse and higher temperature, with occasional chills. These symptoms soon passed away, only to return again in a week or so, although at the time the treatment was of an anti-rheumatic character.

Suspecting—although nothing indicated any trouble of a surgical character—that I might have overlooked some foci of suppuration, Dr. Weir, of New York, was called in consultation, and upon careful examination found no surgical cause for the trouble, and expressed his inability from his standpoint to enlighten me, but he favored the diagnosis of malarial poisoning.

Dr. Edward J. Ill, of Newark, a gynecologist of wide experience and ability, was now called, but could find nothing in the genital organs to account for the very annoying condition with which we were confronted. Dr. Ill and myself, upon examination of the chest, thought we could detect slight dulness in the right infrascapular region, and considered that it might be due to pleuritic adhesions, if not to some more extensive infiltration of the lung-substance, and again the question arose, Was the trouble not tuberculous?

[1] Read before Practitioners' Club, March, 1895.

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The valvular lesion was of course noted by all, but was not considered as bearing a causal relationship to the present illness. The fever continued without signs of abatement; at times the temperature would show some indications of remaining at the normal, but only to rise to a higher level.

In November, while in despair as to what to do, it struck me that the heart might be primarily at fault. I made a diagnosis of endocarditis, possibly ulcerative, on the ground of the well-known heart-trouble, the recurrent attacks of rheumatism, the character of the fever, and by excluding all other conditions likely to give rise to similar symptoms. Salicylates were again tried more persistently, and for the first time since June the temperature was reduced for a few days to normal, and at times below normal, but it could not be kept down, rising on an average to 99° or 100° during the day.

Being now satisfied of the correctness of my diagnosis, Dr. A. L. Loomis, of New York, was asked to see the case in consultation. Upon careful examination he found no evidence of tuberculous trouble, and, while admitting that the valves of the heart were damaged, considered that they had nothing to do with the fever, and that the case was one of auto-intoxication, due to a gouty or rheumatic condition of the patient, and recommended thorough intestinal antisepsis. All of these suggestions were carried out, but without result. The fever continued the same; the urine was normal; the nutrition was fair, although the patient was getting weaker. These conditions continuing a few weeks longer, Dr. George S. Ward saw the case in consultation and considered malarial poisoning as the possible cause.

In January, 1893, the patient began to fail rapidly. The temperature could be kept near the normal with salicylates or quinin, but the heart-sounds were rougher, and the condition was becoming alarming, the temperature at times rising to 103° or 104°, and chills recurring every day or two. Everything that could be suggested was tried, but in vain. About one week previous to death the patient had a severe chill, followed by a temperature of 104.5°; the face became slightly edematous, the ankles and legs swollen, the pulse weaker and showing signs of failing compensation; the urine scanty, albuminous, and bloody, and it was evident that the end was near. Dr. J. C. Young, of Newark, was in attendance the last few days of her life, and concurred with me in the diagnosis of endocarditis.

On February 24th the mind was cloudy; the urine became still more albuminous and bloody, the edema more pronounced, and death took place in coma on February 26, 1893.

An autopsy was held nine hours after death, with the assistance of Dr. Young. The body was fairly well nourished. The liver and spleen were enlarged and hyperemic. The spleen weighed about twenty ounces, and upon its superior border was an old infarction about the size of a silver half-dollar. Lungs, pleura, and bronchial glands were normal. The pericardium contained about four ounces of fluid and was marked with some old inflammatory scars.

The heart was hypertrophied; the mitral valves were greatly eroded and studded with large granular deposits; the chorda tendinea of the middle valve was so eroded as to be entirely severed, the free ends hanging into the cavity.

The kidneys were engorged, and were of the large white variety. The rest of the body, with the exception of the brain, which was not examined, was to all appearances normal.

With the post-mortem findings as noted, the only inference to draw is that in the presence of an old endocarditis may we not have had an acute inflammation of an ulcerative character grafted upon it, and that the case is one of those rare instances in which long periods of fever are associated with indications of heart-trouble.

Strümpell[1] states that "the recurrent form of acute endocarditis consists of an acute increase of the endocardial process, brought on by some exciting cause in an organ already suffering from endocarditis. The acute disease may show all the gradations from the mildest grade to the severest forms. The mild cases often run their course without any special symptoms. To this form we must probably often refer the increase of fever, which lasts a longer or shorter time, and which we often see in patients with chronic valvular disease of the heart. In rarer cases the recurrent endocarditis comes on quite suddenly in the form of a severe acute disease. This sometimes seems to be clinically a primary, independent disease, especially if the previous chronic heart-disease has up to that time caused no special symptoms. The patient is attacked with general malaise, headache, chills and fever. The latter may be quite high—104° (40° C.) and over—or moderate, varying between 100° and 102° (38°–39° C.), or it may be entirely absent. In many cases it is intermittent when the increase is often associated with a chill. The symptoms in the heart may be quite pronounced, but in this form, too, they may be obscure and indefinite. The course is rarely rapid, and often lasts for weeks. In the further course of the disease we meet with cutaneous hemorrhages, retinal hemorrhages, articular swellings, large renal hemorrhages, or typical hemorrhagic nephritis—in short, just the same general type of disease as in the other malignant forms of acute endocarditis."

In considering the history of these most interesting cases, we are prone to ask why they should be considered as acute; for certainly a valvular trouble lasting a year would be more appropriately classed as chronic, and on this point Osler, in commenting upon the case of Dr. Mullin, in which the fever lasted for more than a year, and in which the autopsy showed extensive vegetations upon the mitral valves, states that the term acute is scarcely applicable to them, and further remarks that cases in which patients with chronic valve-disease are attacked with marked fever, and evidence of recent endocarditis, may present symptoms of a pyemic or a typhoid character and may run a most acute course, but those lasting weeks or months assume rather a chronic character. Quoting from Loomis, Osler states that when an individual already suffering from valvular disease of the heart is attacked with acute rheumatism the liability to acute endocarditis is increased, and even when rheumatism is absent acute endocarditis is liable to occur in the presence of old valvular disease.

In reviewing the case here recorded, the temperature-range, extending over nine months to my personal knowledge, during which a careful record was kept, was the most pronounced feature, averaging from 101° to

[1] Text-book of Medicine.

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101.5° throughout that time, the chills and the articular symptoms being concomitant and troublesome.

Despite the old valvular trouble, followed by acute attacks of endocarditis, the cardiac compensation would possibly have continued for a still longer time had not the rupture of the heart-muscle brought on the crisis. The lesson to be learned from this case is that we must not be satisfied to ignore old valvular lesions of the heart, but should be watchful lest they assume renewed activity.

151 ORCHARD STREET.

## EXPERIMENTAL NOTE.

### *SOME EXPERIMENTS WITH TEA.*

BY PETER MCKECHNIE, M.D.,
OF TALAWAKELA, COLOMBO

THE following results may be interesting to members of the profession. They represent the outcome of an inquiry into the action of tea on the digestive organs.

The trial-experiments were carried on with test-tubes, a digestive fluid being prepared by making a glycerol extract of pepsin. The aliment used consisted of beef-fiber and egg-albumin. Measured quantities of each were used, and to six test-tubes containing the meat-fiber were added the glycerol extract and hydrochloric acid, also a measured quantity of tea, different lengths of time being given to each infusion, varying from five to twenty minutes, so that the different test-tubes each had a different degree of strength of tea. A seventh tube was used to fix the time required for the digestion of the meat-fiber alone, which proved to be about 110 minutes. With the tea added to the other test-tubes the time required for the digestion of an infusion of twenty minutes was the same as with one of five minutes, namely, 118.5 minutes. Another experiment was made on the same basis, but with the tannic acid precipitated by means of a gelatin solution. The result of this showed no appreciable difference in the time taken to digest that with tannic acid and that without tannic acid.

The experiments were carried still further by means of a gastric fistula formed in a monkey's stomach. It was found on introducing the ingesta by the mouth that digestion was retarded about five minutes longer than when the ingesta and the tea were introduced through the mouth and the fistula respectively, thus showing that the tea exerts an inhibitory influence upon the salivary glands. When the tannic acid was precipitated and introduced in the same manner there was no difference in the time occupied in the digestion of the tea without tannic acid by the mouth as compared with that by the fistula, but there was an appreciable difference on the introduction of an infusion of twenty minutes without tannic acid as compared with an infusion of five minutes with the tannic acid removed. The peristaltic action was retarded and the secretion of gastric juice diminished. I am of opinion that the tannic acid in the tea is not the injurious agent, but some of the less soluble extractive matters.

With a view of ascertaining the value of the teas of different countries as dietetic agents I procured samples of Chinese, Ceylon, and Indian teas, and carried on experiments with them, an infusion of equal quantities of each kind being used. The Indian and Ceylon teas gave a much stronger infusion in five minutes than the Chinese teas; I found that digestion took place more quickly with the stronger infusions than with the weak. The secretion of gastric juice was increased considerably with the Indian and Ceylon teas.

The reason I attribute for this is that Indian and Ceylon teas contain a much higher percentage of caffein than Chinese teas, thus acting as a stimulant to the motor nerves and increasing the peristaltic action and flow of gastric juice.

From the results of my observations I am inclined to think that the action of tea is not so injurious as some would like to make it out. It is greatly dependent on the method of infusing, whether its action is injurious or beneficial. Long-infused teas seem to extract some substance, possibly an alkaloid, that has an inhibitory action on the nerves of the stomach. I may here state that an infusion of tea of twenty minutes with the tannic acid precipitated has the same bitter taste as the same tea with the tannic acid present, so that the bitterness in long-infused tea is not due to the tannic acid, but to some other ingredient.

The method of preparation of the tea-leaf is another point that requires attention. Indian and Ceylon teas are prepared on a more highly scientific basis than those of Japan and China. The curling of the leaf is done in the first-mentioned countries by means of machinery, by which means the cell-walls are entirely broken up; while in China and Japan the rolling is done by hand, which is a most imperfect method from an economic point of view, owing to the greater surface exposed. Through the entire breaking up of the cells in Indian and Ceylon teas, less tea requires to be used in order to get the same result as in Chinese tea; thus with three pounds of either Indian or Ceylon tea the same amount of work can be done as with five pounds of China. In my experiments I found that an infusion of Indian and Ceylon teas in the proportion of forty-five grains to ten ounces of water gave a solution of the same specific gravity as an infusion of Chinese tea consisting of sixty grains to ten ounces. The experiments carried out with these infusions showed a marked superiority of the Indian and Ceylon teas in assisting digestion. On making a microscopic examination of the leaves after drying them, I found that in the case of the Ceylon and Indian leaf the water had extracted the free tannic acid, while in the Chinese teas there could be observed needle-shaped bundles within the interstices of the cells.

I think that it would be advisable for medical men in studying the dietary of their patients to caution them against the use of long-infused teas. If a patient has tea which requires long infusion, there is something wrong, as the active principles can be extracted in five minutes from really good teas. Longer infusion is most injurious; in fact, with Indian and Ceylon teas three minutes are quite sufficient. I shall continue my researches, and intend to study more of the chemistry of tea and its physiologic action on the nerve-centers.

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***Eye, Ear, Nose, and Throat Clinic*** is the title of a new quarterly publication emanating from Kansas City, Mo., and edited by Drs. Flavel B. Tiffany and James E. Logan, and containing a department of neurology under the charge of Dr. John Punton.

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# NEW DEVICE.

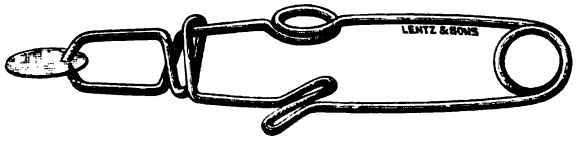
## *A NEW COVER-SLIP FORCEPS.*

BY A. H. STEWART, M.D.,
OF PHILADELPHIA;
INSTRUCTOR IN CLINICAL MICROSCOPY, JEFFERSON MEDICAL COLLEGE.

As the microscope comes into more general use by the physician, and as the study of bacteriology has become so necessary, new devices are constantly being brought forth to aid in research. Many new instruments are needed; many old ones have become useless.

There is no one instrument that is used by bacteriologists so frequently as cover-slip forceps; but every microscopist knows how inefficient are the cheap varieties and how comparatively expensive are the good ones, and none is entirely satisfactory.

The forceps here illustrated has proved in my work more generally satisfactory than any other yet seen. It is made of coppered steel wire or German silver wire, and can be manufactured for about one-fifth the cost of the orignal Lindslay or the Cornet nickel-plated steel forceps, and is just as steady and durable. The spring is sufficiently strong to hold firmly a slide or cover-glass without allowing it to move from side to side and yet




not powerful enough to break the glass. The blades of the forceps are locked, thus giving a perfectly steady movement and constant apposition when not in use. The extremities of the blades are small and circular and are made in such a way that the cover-slip held in position has a slight inclination downward away from the instrument, so that the stain when placed upon the cover-glass does not run down on the lower blade of the forceps, even when the blades are moist.

When placed upon the table there is no tendency for the instrument to upset, the base being more than an inch wide, and when placed upon the side the cover-glass escapes injury, not striking the table because that end of the forceps is overbalanced by the other.

The comparative cheapness and durability of this forceps will recommend it as a most valuable instrument, not alone for ordinary private work, but in large laboratories where many men are at work, and large numbers of such instruments are required.

It is manufactured by Bausch & Lomb, of Rochester, N. Y., and can be procured from dealers in microscopic supplies in Philadelphia.

250 NORTH TWELFTH ST.

# MEDICAL PROGRESS.

***In the Treatment of Fracture of the Patella*** FOWLER (*Annals of Surgery*, vol. xxi, No. 6, p. 627) recommends exposure of the fragments after the immediate effects of the injury have subsided, and before the occurrence of ligamentous union, for the purpose of clearing their surface of intervening soft parts, and the application of fixation-hooks somewhat resembling Malgaigne's, except that a single instead of a double pair is applied. The parts are kept at rest for from fourteen to twenty-one days, or sufficiently long to permit of the subsidence of the effects of traumatism upon the surrounding structures, as well as the closure of a possible rupture of the upper recess of the capsule of the joint. During this period of waiting the time is advantageously occupied by daily cleansing of the parts with soap and water, and the application of gauze compresses wet with borosalicylic solution, secured in position with a figure-of-eight bandage.

The operation-wound, by which access is gained to the fracture, is placed either transversely or vertically; if transverse, it commences at the inner edge of the patella slightly above its middle, curves sufficiently downward to include beneath the flap the line of fracture, crosses the front of the lower fragment just above the attachment of the ligamentum patellæ, and ascends to terminate at a point opposite the place of commencement. The half-moon-shaped flap thus marked out is dissected back just far enough to expose the line of fracture and no further. Careful and systematic removal from between the fragments of the intervening mass, consisting of stretched and torn shreds of fibrous tissue and partially organized blood-clot, is now practised. This is greatly facilitated by first incising along the free margin of each fractured surface and loosening the mass at these points first. The blade is now slipped between the mass and the fractured surfaces, and the former freed from the latter without difficulty, and removed as one piece. Care is taken during this portion of the operation not to tilt or otherwise disturb the fragments, and to expose the joint-surfaces as little as possible. No irritating fluid should be employed; whatever portions of the *débris*, blood-clots, etc., which may chance to fall into the gap between the fragments, and cannot be picked out by the dressing-forceps, may be removed with bits of sterilized gauze grasped between the blades of hemostatic forceps.

The fragments are now made to approximate each other as much as possible. One of the fixation-hooks is thrust into the bone at the site of the attachment of the ligamentum patellæ to the lower fragment. The other is pushed through the skin and into the bone at the site of the attachment of the rectus femoris to its upper border. With the fractured surfaces in perfect coaptation, as seen with the flap still turned back, the shanks of the fixation-hooks are drawn together and secured, and the fragments held in a most secure manner. Two or three very fine silk sutures may be employed to secure the edges of the soft parts along the line of fracture. The flap is now replaced and sutured with a continuous subcuticular silk suture. Sterile gauze-dressings and non-absorbent cotton, secured in position by rollers, are applied; and a plaster-of-Paris splint insures immobilization. If the curve of the transverse incision is properly managed, the lower hook will be so placed as to secure the bone directly in the line of the incision, thus avoiding the passage of the former through a wound of its own in the skin. If the vertical incision is employed, both upper and lower hooks can be secured in the bone in the line of the incision. The transverse incision (U-shaped) gives better access to the parts if well curved.

The fixation-hooks are permitted to remain for about

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three weeks. Should it become necessary for any reason to remove them earlier, this can be done by opening the splint at the anterior knee-portion. The patient may recline, or sit, or go about in a wheel-chair during the convalescence.

***Colectomy.***—PAUL (*British Medical Journal*, 1895, No. 1795, p. 1136) details eight cases of colectomy for various conditions, and summarizes his views as to those which are most suitable for operation and as to the best methods of accomplishing this. He believes that young subjects with a comparatively short history, who are passing mucus and blood in the stools, and in whom the tumor is large enough to be felt, are the cases in which the growth is most malignant. Unless very large, the affected part can be safely removed, but recurrence must be expected. Older people, upward of forty-five years, with generally a longer history of gradually increasing constipation, frequently culminating in absolute and sudden obstruction, often have a ring-stricture, which is much less malignant, and when satisfactorily removed may undoubtedly be followed by permanent cure. Expression is given to a personal willingness to remove the growth in almost all cases in which there are no secondary deposits, but those who wish to select carefully should be content with colotomy in the former class, and restrict colectomy to the latter. Attention is directed to the frequency with which the abdominal pain (colic) and vomiting of the earlier stages of chronic obstruction are mistaken and treated for dyspepsia. The sooner the disease is recognized the better is the surgeon's chance of success.

The operation may be accomplished in two very different ways, one by immediate and one by delayed approximation, each being suitable for a certain class of cases. When the patient is in good condition, the abdomen not distended, the tumor small, and the proximal end of the bowel not greatly hypertrophied, immediate approximation by Murphy's button-method is advised. When, however, the opposite of this condition prevails, it is strongly urged that the ends of the bowel should be brought out. The important steps of the operation are as follows: 1. Exploration first in the middle line unless the stricture has been located; 2, a sufficiently free incision over the site of the tumor; 3, after adhesions have been cleared away, ligation of the mesentery with the help of an aneurism-needle and sufficient division to free the bowel well beyond the growth on each side; 4, hanging the loop of bowel containing the growth or stricture out of the abdomen and sewing together the mesentery and the adjacent sides of the two ends. The stumps of the mesentery should lie beneath the bowel, where, if deemed advisable, it can be drained by packing gauze down to it; 5, tight ligature of a glass intestinal drainage-tube into the bowel above and below the tumor and then cutting away the affected part; 6, closure of the ends of the wound with a few silkworm-gut sutures, passing through all the layers of the abdominal wall. The second stage of the operation, that of breaking down the spur with an enterotome, should generally be undertaken about three weeks later. As soon as this has been satisfactorily accomplished, the artificial anus is closed by separating the roset of mucous membrane from the skin, turning it in, and bringing the freshened edges of the latter together over it.

***Absence of the Thyroid Gland in a Case of Cretinism Successfully Treated with Thyroid Extract and Fatal from Broncho-pneumonia.***—BURCKHARDT (*Revue Médicale de la Suisse Romande*, June 28, 1895, p. 341) has reported the case of a child, three years old, presenting a well-pronounced clinical picture of cretinism, in which marked improvement in the symptoms and physical characteristics followed the therapeutic employment of thyroid extract. The treatment had thus been continued for three months, when death ensued in the course of an attack of broncho-pneumonia. Upon post-mortem examination most careful search failed to detect the presence of thyroid tissue, the gland being replaced by adipose tissue.

***To Preserve Specimens of Urine***, LEFFMANN (*Philadelphia Polyclinic*, vol. iv, No. 26, p. 271) has found chloroform to answer most satisfactorily, from six to eight drops being added to each ounce. It yields with Fehling's solution a reaction similar to sugar, but it does not react with the bismuth or the phenylhydrazin test nor prevent either of these when sugar is present.

## THERAPEUTIC NOTES.

***Forced Dilatation for the Relief of Diphtheric or Croupous Obstruction of the Larynx.***—BORS (*New York Medical Journal*, June 29, 1895, p. 822) has treated a series of cases of laryngeal obstruction arising in the course of diphtheria and croupous laryngitis by means of forced dilatation. For this purpose he uses an instrument consisting of a three-bladed, jointed dilating-canula, attached to a bent shaft contained in an introducing-handle. After the canula has been introduced into the larynx the blades are separated by means of a screw situated under the handle. The application occupies but a few moments, and in the majority of cases a single dilatation is sufficient. Should the growth of false membrane constantly recur, the manipulation should be undertaken every two or three hours for two or three days. The same procedure may be adopted in cases of laryngeal stenosis due to syphilitic and other cicatrices. The instrument is made in three sizes, of 2½, 4, and 5 mm. in diameter.

***A Simple Means of Preventing Nocturnal Enuresis.***—STUMPF (*Münchener medicinische Wochenschrift*, 1895, No. 24, p. 560), from physiologic and dynamic considerations, proposes to treat nocturnal enuresis by depressing the head and elevating the hips of the sleeping child, and has employed the method in some twelve cases in individuals of various ages and of both sexes with the best results.

***Pencils of Salicylic Acid.***—

| | | |
|---|---|---|
| ℞.—Salicylic acid | . . . . | 20 grams. |
| White wax | . . . . | 25 " |
| Lanolin | . . . . | 55 " |

—*American Journal of Pharmacy.*

***In the Treatment of Aneurism*** COHEN (*Philadelphia Polyclinic*, vol. iv, No. 27, p. 282) employs hydrated calcium chlorid in doses of about a dram a day, in conjunction with rest and other suitable adjuvant measures.

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SATURDAY, JULY 27, 1895.


## THE COMPARATIVE STANDING OF THE AMERICAN MEDICAL PROFESSION.

WE Americans have never been accused of being a too modest people. We have a due respect for our own achievements, and seldom hesitate to express it with vigor. But we are discriminating in our self-appreciation. We are just as keenly conscious of our defects as of our virtues, and as frank in bewailing them.

That is the real difference between us and the Scotchman or the German, for instance. These seldom brag, but that is merely because they are so calmly confident of their overwhelming superiority. No word from them is needed. They and theirs speak for themselves, and simply overawe with conviction any intelligent foreign mind. If you are not convinced, it's because you are not intelligent, and argument would be wasted on you. And they seldom or never invite the attention of the public to their defects, even when they see them, which isn't often.

One of the things over which we are particularly fond of indulging in jeremiads is the "low standing and standard of the profession in America." We bewail (and justly) the shortness of our college-courses, the lowness of our examination-requirements, the abundance, shamelessness, and prosperousness of our charlatans, both in the profession and out of it, and the scandalous popularity of the patent medicine. All this is perfectly true, and its recognition is good Christian discipline for us. But, not content with this, we plunge further and declare that such a disgraceful state of affairs was never known in civilized country. As usual, "they order this matter better in France," say we, and proceed to declare that in England and on the Continent all medical men are highly educated gentlemen, that self-advertising and violations of the Code are unheard of, and the patent-medicine nuisance almost abolished. And here is where we mistake. There is really no such tremendous difference as we imagine between the beam in our own eye and the mote in our European brother's. Each profession has simply the defects of its surroundings.

For instance, it is customary to declare that the quality of our profession must be poor because its numbers are so disproportionately large. We have actually one physician to every 500 inhabitants, four times as many as England (1:2000), six times as many as France, nearly eight times as many as Germany, and fourteen times as many as Russia or Spain (1:7000). Our low standards and the cheapness of our diplomas, we cry, have flooded us with a swarm of incompetent, half-educated men, whose numbers are the root of two-thirds of our troubles. If scientific Germany and decorous England are satisfied with one-fourth or one-sixth of our number, we must have a ruinous excess.

But there are other factors to be taken into consideration, and legitimate ones, too. The law of supply and demand, for instance, and the density of population for another. One competent physician is probably capable of properly performing the medical services required by 1500 or 2000 people, *providing* they are situated within a radius of three miles from his office, and for an even larger number within a mile; but what about the district where he would have to drive forty miles to reach 500 people? A physician is just as absolute a necessity to a "cow-town" or mining-camp of 300 people, and no medical aid within fifty miles, as to a factory-village of 5000. Indeed, many a "superfluous," poorly educated, uncouth country doctor, out on the frontier, with his tiny *clientèle* scattered over two counties, who loves his patients and his profession, commands as much of our admiration and respect, deserves as well of his country, and is as "necessary" in every

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sense of the term as the most scholarly and polished consultant of a European center. If we were to divide this country and England each up into geographic settled districts, each requiring the residence of a physician, nearly two-thirds of our "excess of doctors" would disappear at once.

A word in this connection in regard to our low standard of professional education. This, we must also recognize, has an economic basis which, in the past, has raised it to the dignity of a practical necessity. It is not merely due to our "natural slipshod tendency." Exactly the same state of affairs prevails among our merchants, our tradesmen, our artisans—and for the same reason. In Europe a special education or years of apprenticeship are considered necessary to fit a man for any occupation or trade, even for a farmer. Here the farmer turns merchant, the mechanic, lawyer, the ploughboy, preacher, at a few months' or even days' notice—and successfully, too, as our extraordinary material prosperity indicates. It is merely a question of supply and demand. With literally scores of new, independent, and widely separated communities springing up every month, each one demanding a complete outfit of both brain-workers and muscle-workers, from judge to blacksmith, from bench to bellows, a rapid rate of production of "specialists" is absolutely necessary. The country simply couldn't have been settled *and kept civilized* without it. The wonder is that, considering the tremendous pressure under which the transformation took place, the results have been so good. On hunting-trips through the West ten or fifteen years ago it was a common experience for a doctor to be simply begged to stay in half the settlements he passed through; office-rooms, building-lots, houses even, would be offered, and when declined the urgent request would be made for a member of the next graduating-class, an office-student even, "anyone who knows how to deliver a woman and set a broken leg, for there's no doctor short of the fort, sixty miles away." Our "rapid-process" doctors have really been filling a genuine civic need of great importance. The greater part of our territory has now been supplied with its "geographically necessary" medical staff, and behold the result! A rapid elevation of the standard of education and a unanimous lengthening, nearly doubling of the course by almost every reputable medical school in the country.

The motive which led to this elevation had, of course, no connection with the economic influences, but these latter rendered the triumph of the better element possible. Just as long as a "six-weeks doctor" can go West and pick up a living practice at once so long a certain class of schools will turn out that kind and no other.

There is also another consideration in regard to our "oversupply" of physicians, which may seem at first sight fanciful, but which it seems to us has real weight. And that is, that the more highly civilized and the more intelligent a people the larger proportion of physicians will be needed. Not because disease becomes more common, but because a higher standard of health, comfort, and efficiency is demanded. There is little need for oculists, for instance, in an illiterate community, and the Cossack of the Don has little use for sanitarians or health-officers. More than this, the sensitiveness of the organism counts for much; the peasant, artisan, and even middle classes of Europe will suffer ten times as much in the way of pain, disfigurement, or disability, as our native Americans before they will consult a doctor. We seldom see "typical cases" of certain diseases described by our German and Austrian *confrères*, simply because they are not permitted to develop so long without interference from either medicine or soap. As an illustration of our meaning, it is a matter of common observation by Americans abroad that even well-educated and well-to-do Europeans will tolerate for years a condition of their teeth and gums which would be considered simply unendurable, if not actually disgraceful, here.

In short, the number of physicians is a good index of the intelligence of a race. And as civilization becomes more complex, and the whole field of preventive medicine, scarcely surveyed as yet, is added to our domain, a still higher proportion of skilled, intelligent advisers will be demanded by the community.

But, says someone, are we developing many such men or encouraging their development, or will not the mass of half-fledged living-makers overwhelm the small minority of scholars and maintain a low professional tone and standard in spite of everything? By no manner of means. The question is somewhat on the order of Carlyle's celebrated conundrum, "How can the united sagacity of fools constitute wisdom?" It is the best, the broadest, the most devoted men, from hamlet to metropolis, who sound the key-note and who set

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the pace. Partly because cream always rises to the top, but, in still larger degree, because the great mass of imperfectly prepared physicians are keenly conscious of their defects and anxious to remedy them. Some, of course, fossilize into the pompous walking-dictionary of their parish, the self-satisfied oracle of admiring grandmothers, with "sure cures" for everything; but they are few and absolutely without influence on the mass. A half-educated man, who knows himself to be so, is often a much more desirable member of the profession than a well-educated man who is thoroughly aware of the fact. The former has unconsciously attained the Socratic attitude, "I know nothing, except that I know nothing; others do not know even this." There is a striking difference between the European profession and our own in this respect. The average British practitioner, college-bred and hospital-trained for five long years, with a couple of terms as interne added, usually buys himself a practice or a partnership and settles down for life. He reads his single medical journal, of course, attends his county society, goes to the British Medical Association when it comes within fifty miles of him, and occasionally revisits his old hospital, or attends a few clinics when in London with a patient. But as for post-graduate courses, even in London or Edinburgh, to say nothing of Paris or Vienna, he never thinks of such a thing. He has much to learn yet, of course, but his *education* is practically complete; experience is all he needs. There is but one post-graduate course in all London, and that was gotten up for the benefit of Americans. There are many honorable exceptions, of course (the F.R.C.S. and M.R.C.P. men, for instance); but the English practising physician who has studied abroad or taken up systematic work of any sort since his graduation is rare. Much the same state of affairs prevails in France, Germany, and Austria. Visit any great medical center and one will see ten American students to one of any other foreign nationality. The true *Deutscher* indeed would scorn to study outside of the *Vaterland*, and even consultants and teachers in Germany too often know little of and care less for the work which is being done in their own field elsewhere.

With all its faults and pretentiousness our post-graduate course is one of our most useful institutions, and the resolute determination and enterprise with which the majority of our "two-year" men avail themselves of its privileges compel our respect and admiration. No sooner is the horse and buggy earned, and the first payments made on house and lot, than our country doctor begins to lay by money to take a winter course, or even an additional year in New York or Chicago. A few years later he goes abroad, and this habit is kept up more or less through the whole of his professional life. We can scarcely go into any middle or western town of 2000 people, or even rural district of the same population, without finding some doctor who has spent one or more winters or springs in Philadelphia or New York, and not infrequently in Vienna or Paris. It is true the majority of us are imperfectly educated, but we are not ashamed to admit it, and we are doing our best to remedy the defect.

We are also accustomed to assume in the depths of our self-depreciation that our general ethical tone as a profession is far below the European one. Nothing could be further from the truth. From personal experience we do not hesitate to say that the tone of our profession as to courtesy, modesty, and ethical qualities generally is but little below that of England, and *far above* that of either Germany or Austria. The disgraceful promptness and certainty with which all new remedies and appliances get themselves patented in Germany is a case in point, as is also the attempt to cover Behring's antitoxin in the same manner. The German or Austrian is permitted to trumpet his own praises abroad, or denounce and belittle his rival brother in a way that would scandalize even the Bunkum County Medical Society. His titles and official rank are spread before the public at full length on every possible occasion, and woe betide the unlucky wight who omits the least of them in addressing him. The shower of abuse and vilification poured upon SIR Morrell Mackenzie by the court-physicians, in the case of the Emperor Frederick, even granting every possible provocation on his part, was a disgrace to the entire German profession. Fancy Agnew and Hamilton abusing Bliss after that fashion in the Garfield case, no matter what he did!

As to personal courtesies, it is no unusual thing for Austrian consultants to charge fees, and heavy ones, too, for services or even advice to visiting English and American physicians. When it comes to that truest test of a man's real breeding, his manner and behavior toward his hospital-patients, there is simply no comparison to be made between

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the Continental and Anglo-American attitudes. It might be roughly summed up in one sentence: in America or England the chief object of interest and care is the patient, in Germany the disease.

Last of all, we are apt to assume that quackery is a malady almost peculiar to our own soil, and that the official lists abroad represent all the healers of disease in their respective countries. It is true the fame of the American quack is world-wide, and his luster is unrivalled anywhere in Europe; but, nevertheless, the fact remains that even the best-regulated countries in the world abound in "irregulars" of every sort and description. First of all come the apothecaries, who in many parts of England, for instance, are more numerous than the physicians, and prescribe over their counters fully one-half of the medicine consumed in the country. The "pothecary" is the first resort of the vast mass of the laboring-classes, the doctor being far too expensive to be called, except as a last and direst necessity. Then come a horde of midwives, "bone-setters," "wise women," and so forth, down to the "seventh son of a seventh son," and the man who has bought or inherited a secret formula of magic value.

As to patent medicines, although the term is one of our own coining, the goods it is applied to are cosmopolitan in their range. Though we use far more of them per capita here (as we do of all other luxuries), especially in prohibition communities, yet the sale of them in England, France, and Germany is simply enormous. Their advertisements swarm in every paper, appear upon every bill-board, street-car, and dodger, and would disfigure the landscape almost as horribly as they do on this side the Atlantic was not such defacement strictly forbidden by law. Indeed, in effrontery and in diabolical ingenuity of methods of thrusting their wares upon your notice, the French and English manufacturers are rapidly going ahead of our own. The columns of foreign papers and journals are coming to be even more heavily loaded with "ads" of this, and, indeed, of all descriptions, than our home-ones. And this latter tendency is noticeable in even the medical journals. Even some models of British journalistic propriety carry heavier ballasts of legitimate advertisements in proportion to their canvas of reading-matter than would be considered entirely *comme il faut* by one of our first-class journals.

In short, all professions, as all nations, have their shortcomings, and while we have many things to be heartily ashamed of, both as individuals and as a class, and should slacken our struggle for self-improvement not a whit, yet we think it only fair at times to take stock of our virtues as well as our vices, and to cheer ourselves with the thought that with all our shortcomings our intentions are good, our hearts in the right place, and our rate of progress distinctly appreciable.

## EDITORIAL COMMENTS.

***Hippophagy.***—It is an ill wind that blows nobody good, and the late appalling fall in the price of horses, due to the introduction of the electric trolley and the bicycle, has turned the attention of our thrifty farmers to the question of the utilization of horse-flesh as an article of diet. None of them seems at all desirous to make the experiment himself, but they fail to see why it should not form an excellent and healthful food for somebody else. In fact, the project has been seriously considered just lately of shipping horses on the hoof to Germany, where they are sufficiently enlightened to have no prejudice against this luxury. According to Secretary Morton, nearly 10,000 horses are slaughtered every year in Germany alone for food purposes, a large proportion being used in the production of their favorite "horse-sausage." The average price paid by the butchers is about $35 a head, which would yield quite a good profit to the shippers.

Now why should we not do likewise and save the poor ponies all the horrors of sea-sickness and transportation. We copy Germany as nearly as we can in pathologic matters already. Why not also in dietetic customs? The only obstacle is mere popular prejudice against eating horse-meat. We might succeed in introducing a little of the sausage, because we are already accustomed to the use of man's next nearest four-footed companion, the dog, in that form, but as to colt-steaks and mare-cutlets there would be difficulty.

Seriously, however, why should we not add horse-flesh to our bill-of-fare? There is absolutely no physiologic or hygienic reason why it should not be as nutritious, healthful, and palatable a food as the flesh of the ox or the sheep. Indeed, there is abundance of evidence from all climes that it is the equal of beef and mutton in all three of these respects. The Tartar hordes of the Siberian steppes depend on their horses almost entirely for meat as well as milk and clothing; as also did the Scythians of antiquity. In war and in times of scarcity horse-flesh has been used hundreds of times and with most satisfactory results. During the last siege of Paris, for instance, thousands of horses were consumed, and the meat was found so palatable that dozens of butcher-shops still do a large trade in it—a trade that is steadily increasing, especially among the laboring-classes. The meat is said to be almost indistinguishable from beef, though of finer grain and more marked flavor. This is extremely favorable when we remember that most of the animals killed have been such as through age or injury were incapacited for hard work. Curiously enough, mule-beef is said to be still juicier and better flavored.

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In fact, the only objection that can be raised is on the score of expense, and that has now been completely removed, as many horse-raisers would be glad to get good "beef-prices" for all but their choicer stock.

Besides being a valuable addition to the variety of our flesh-foods, in the light of recent bacteriologic developments there would be another advantage that might make the use of horse-meat of great importance to the community. This is the almost complete immunity of the horse to tuberculosis. If, in addition, a breed of horses could be developed with special reference to their milking-powers—equine Jerseys, as it were—and their milk substituted for that pernicious extract of tuberculous bovines that at present fills our nursing-bottles and milk-pitchers, what a threatening shadow would be lifted from our national future! By all means let us urge horse-flesh and mare's milk upon our patients if only to relieve the anxiety of our bacteriologic friends and save the babies from sterilized milk. Of course, from a purely scientific point of view they had better starve on that than grow fat on tuberculous lacteal fluid, but mothers and even doctors cannot see it so. Indeed, mare's milk should be a sure prophylactic against "mare's nests" of all kinds.

*Typhoid Fever and the Brand Method.*—In the report of the German Hospital of Philadelphia, recently issued, we find the percentage of deaths from typhoid fever treated in that institution during the year to be 16⅔ per cent.—78 cases with 13 deaths. The German Hospital has been the home of the so-called cold-water treatment in this country, and the beneficial results of the treatment in this institution in previous years have been largely quoted. The following table shows the number of cases of typhoid fever treated and the mortality from the year 1890, when the Brand method was introduced:

| | No. of cases treated. | Deaths. | Per cent. |
|---|---|---|---|
| 1890 | 106 | 5 | 4.7 |
| 1891 | 116 | 8 | 6.9 |
| 1892 | 71 | 3 | 4.2 |
| 1893 | 74 | 11 | 14.8 |
| 1894 | 78 | 13 | 16.6 |

In THE MEDICAL NEWS of November 26, 1892, Dr. J. C. Wilson reported one series of 160 cases, treated according to the method of Brand, with 8 deaths, or 5 per cent.; and another series of 66 cases, with 4 deaths, or 6 per cent. (These cases are included in the figures already given, though differently arranged.) It would be interesting to determine what has caused this unfavorable increase in the mortality-rate under the cold-water treatment. As far as we can learn, the methods have not been changed, and the disease in Philadelphia has not been especially virulent. The death-rate varies in different years. In the same hospital, previous to 1890, the mortality varied from 11 per cent. to 20 per cent.

The Pennsylvania Hospital typhoid-fever statistics are as follows:

| | No. of cases treated. | Deaths. | Per cent. |
|---|---|---|---|
| 1890 | 126 | 22 | 17.4 |
| 1891 | 144 | 23 | 16 0 |
| 1892 | 104 | 10 | 9.6 |
| 1893 | 94 | 4 | 4.2 |
| 1894 | 105 | 14 | 13.3 |

The Presbyterian Hospital reports show the following:

| | No. of cases treated. | Deaths. | Per cent. |
|---|---|---|---|
| 1890 | 17 | 5 | 28.8 |
| 1891 | 39 | 5 | 12.8 |
| 1892 | 83 | 6 | 7.0 |
| 1893 | 69 | 12 | 17.0 |
| 1894 | 80 | 3 | 3.7 |

In the Pennsylvania and the Presbyterian hospitals the Brand method has been used in the majority of cases during the last two years.

There is some danger of such a method of treatment becoming routine, to the exclusion of all other treatment, and this is always to be guarded against. The cold bath has decided advantages, and when carefully given and controlled, and each case judged by itself, it is a therapeutic agency of great worth; but if it is considered in the light of a specific agency, and each patient is subjected to it, the bulk of the work being left in the hands of the nurses, there is some liability to suffer from an increase in the mortality-rate. One of the good effects of the Brand treatment is the constant watching that is required, the frequent noting of the temperature, etc.

Sixteen-and-two-thirds per cent. mortality is not a very favorable showing for the cold-water treatment, although the managers of the German Hospital in their report still seem to regard the results as most encouraging, and give large praise to the treatment. It would be interesting to conduct a series of experiments in the same hospital, at the same time, with a sufficient number of cases and extending over a considerable period of time, one group of cases to receive the Brand treatment only, another group to be treated with intestinal antiseptics, and a third group to receive the two combined; the bath for its antipyretic effect, the antiseptics for their local action.

*Opium as a Food.*—Facts are sometimes against the professional reformers. Alcohol, in spite of the evil it does, has certain uses, and is steadily winning its way back to the tables of our educated classes. Tobacco has been authoritatively declared to be a necessity of city life, and one of the great buffers of the shocks of the rush of the nineteenth century. And now even a royal commission in an elaborate report has asserted that the use of opium by the inhabitants of India has a rational hygienic basis, and is not merely one of the "horrors of heathenism." In the first place, it is, we are assured, a valuable household remedy for the intestinal diseases that swarm in that climate, as paregoric and blackberry brandy are used by our country-folk. It is also regarded by the natives as a most reliable preventive of malarial diseases, and though not so recognized by the profession it has been highly esteemed for this purpose by many explorers. The commission does not say anything about snake-bites, which proves that they are not merely engaged in furnishing excuses for the appetite of the gentle Hindoo. Further than all this the report declares that the regular consumption of opium in moderate doses fills a place in the dietary similar to that occupied with us by tea and coffee. In other words, opium is a genuine food of the "force-regulator" class (Prout), and of value especially in connection with a coarse and restricted diet and a life of hardship. Its value was proved after the grimmest fashion during the

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building of the railway across Panama. One of the contractors came to the conclusion, whether upon economic or philanthropic grounds is not known, that opium was a baleful luxury to his army of coolies. Accordingly, he cut off the supply. The men began to flag and sicken at once, but to this he paid little attention, regarding it partly as shamming and partly the mere pangs of a morbid appetite. In less than a week, however, two-thirds were too weak to work; dysentery broke out, and before the frightened contractor could secure a new supply of opium, from a distant port, nearly half the poor wretches had died, and the remainder were months in recovering their strength. In some districts of India the drug is actually given to horses on long and severe rides by couriers, despatch-bearers, and others. The moderate user of opium, says the commission, seems to be as healthy, happy, and long-lived as the average abstainer. Its excessive use is, of course, injurious, as also is that of tea or pie, but such excess is said to be exceptional. As to the mechanism of the alimentary service of these food-narcotics, we are completely in the dark; but then so we are also as to their medicinal effects. The facts seem, however, to be unquestionable. We have the unanimous testimony of humanity to both. There is not a nation upon the globe of whose regular dietary one or more of them do not form a part. This fact alone establishes for the naturalist a high presumption in favor of their usefulness. He, at least, cannot bring himself to believe that all men are fools. "What all men in all times have believed" is considered a weighty argument now, even in theology.

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***A Recent Action of the Illinois State Board of Health*** is worthy of mention. At the June meeting a resolution was passed requiring all medical students in the State of Illinois to pass their entrance-examination before the Faculty of the State University. This is following out the plan of the Regents of the University of the State of New York. It will relieve the medical colleges of Chicago of the necessity of holding these examinations, and it will place them all upon the same footing.

During the past few years a number of new schools of medicine have come into the field and made competition for the medical students in Chicago more severe. The preliminary examination has become a crucial point with many of them. Minnesota, Wisconsin, Iowa, and Missouri are favorably situated to follow New York and Illinois in this movement.

At the last meeting of the Association of American Medical Colleges a resolution was introduced which will be acted upon at the coming meeting in Atlanta, requiring all colleges members of this Association to place their entrance-examinations outside of their own control. Thus we see that the Boards of Health are seconding the efforts of medical educators in relieving the colleges of the only stigma that remains upon them.

It is one step further in the same direction to place the examinations of all candidates for the degree of Doctor of Medicine, and for the licence to practise medicine, in the hands of the Faculty of the State University. This examination must become the rule both for the protection of the public and for the self-respect of the schools.

***Sexual Physiology in the Girls' High School.***—In the Girl's High School of Philadelphia physiology is one of the regular studies, and yet in this study the questions of sex and generation are practically ignored. It seems that those in authority (not the teachers) are afraid the young women may learn something that they ought to know. Where is a girl to derive her knowledge of these subjects, we ask? Her mother will not tell her, or may be as incapable of instructing her in the functions of the sexual organs as she is incapable of teaching her the functions of the heart and brain. In civilized communities natural instincts are not proper or trustworthy guides, and consequently the only teachers that remain are companions who have derived their knowledge in some haphazard and dangerous way, or from sensational and unreliable literature. Three or four lectures on comparative embryology would suffice to give the students the requisite knowledge, and a lecture on the hygiene of the sexual functions might be added. These girls, who are to be the future mothers of the community, cannot know too much about themselves, especially if the knowledge imparted is of the right kind.

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***Commercial Hydrogen Dioxid.***—In the current number of the *American Journal of Pharmacy* is published a note on the strength of commercial samples of hydrogen dioxid. Twenty-five samples were tested, showing an average strength of 9.94 volumes, the highest being 10.37, the lowest 9.03 volumes. Unfortunately, the samples are designated only by numbers, no clue being given as to the manufacturers. Analytic statements of this character are of little professional value. The reports should state the brands tested, the condition under which samples were obtained, and should indicate, at least briefly, the method of analysis.

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***Removal of the Editorial Office of the Medical and Surgical Reporter.***—We learn with regret that our most esteemed contemporary, the *Medical and Surgical Reporter*, in order to be nearer the printing-office of its new publisher, has removed its editorial offices to New York. We are sorry that business reasons should force it to exchange the medical atmosphere of its lifelong home for one of such uncongenial surroundings. It is indeed true that the footings of our clearing-house transactions do not equal those of our self-complaisant sister city.

## REVIEWS.

INDIGESTION. AN INTRODUCTION TO THE STUDY OF DISEASES OF THE STOMACH. By GEORGE HERSCHELL, M.D. Lond. Second edition. New York: G. P. Putnam's Sons. London: Baillière, Tindall & Cox, 1895.

HERETOFORE no English writer has attempted to describe stomach-diseases from the modern standpoint. In making the attempt our author necessarily has departed widely from the course adopted in the former edition. In some respects the arrangement of subjects is admirable, and admits of greater simplicity and brevity than is usual. It is to be regretted that the author has not taken full advantage of his plan. Briefly stated, there are described, 1st, normal digestion; 2d, disturbed

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digestion; 3d, methods of examination; 4th, pathology of special diseases; 5th, treatment. Here is an opportunity for the avoidance of repetition, but unfortunately, under the heading "Interrogation of Patient," there is introduced a chapter of subjective symptoms, most confusing to the student, for whom the book purports to have been written. It appears to be a concession to more antiquated ideas of investigation, proper enough in its place, perhaps, but too conspicuous here.

The modern methods of examination are for the most part clearly stated, and are sufficiently complete for a book of this character. The author's ideas of treatment are acceptable, and much good must be accomplished by spreading his doctrine in Great Britain.

It is unfortunate that in the interests of brevity the element of style has been so much disregarded, and, aside from this criterion, it must be admitted that the diction is imperfect. For instance, it is said (p. 176): "Obstruction in the duodenum may be either a neoplasm, a cicatricial contraction, or due to a flexion." Again (p. 177): "Neurasthenia and many other symptoms are caused by the absorption of toxins from the dilated stomach." Again (p. 176): "The stomach being unable to ever absolutely empty itself." Nearly every page exhibits similar experiments in construction. In the next edition it is hoped that the faults, which, by the way, are more conspicuous than harmful, will be eliminated, and there will remain a good short work on the stomach.

The author recognizes the important etiologic influence of reflex irritation in the production of gastric neuroses, and justly commends the teachings of an American physician in this connection. A writer who shall assign full value to ametropia and heterophoria in the etiology of gastric disorders will become as useful as he is uncommon.

THE CARE OF THE BABY: A MANUAL FOR MOTHERS AND NURSES, CONTAINING PRACTICAL DIRECTIONS FOR THE MANAGEMENT OF INFANCY AND CHILDHOOD IN HEALTH AND IN DISEASE. By J. P. CROZER GRIFFITH, M.D., Clinical Professor of Diseases of Children in the Hospital of the University of Pennsylvania; Professor of Clinical Medicine in the Philadelphia Polyclinic and School for Graduates in Medicine; Physician to the Children's Hospital, to the Methodist Episcopal Hospital, and to St. Agnes's Hospital, Philadelphia; Member of the American Pedriatic Society and of the Association of American Physicians. Philadelphia: W. B. Saunders, 1895.

THIS book, of three-hundred-and-ninety-two pages, is, as its title indicates, designed as a guide to mothers and nurses in the care and bringing up of infants and children. That such a guide is essential, particularly to a mother with her firstborn, is evidenced by the gross ignorance of the simplest details in regard to the care of the child, and by the many popular fallacies in regard to infancy that have been handed down from time immemorial by those who profess to be knowing and skilful nurses of babies; and this is so not only among the poorer classes, but even among the well-to-do. Everyone who has seen much of children cannot but be struck by the joy with which a kind(?) neighbor imparts her ignorance to an anxious, young, and inexperienced mother, not only needlessly alarming the latter, but also doing absolute harm by her ignorant counsel. It is certainly of advantage to both mother and child that such a book as that before us should be available.

The author devotes about a dozen pages to some useful information to the mother in regard to her life prior to delivery, and as to the preparations necessary for confinement. The newborn baby is then described in sufficient detail as regards its superficial anatomy and its physiology. The manner and rate of growth and development of the teeth are fully dealt with in the succeeding chapter. Chapters on the toilet and the clothing suitable for the different ages are followed by an extremely good chapter on the diet. In the latter the author's views are not far different from those of other writers upon the selection of children's diet. He decidedly prefers the use of soda-solution to that of lime-water as an alkalinizing medium in the use of cow's milk. Sleep, exercise, and training, the baby's various nurses, and the baby's rooms finish the portion of the book devoted to the baby in health. The chapter on the sick baby occupies most of the rest of the volume. In it the author describes the features of disease, the management of the sick baby, and the disorders of childhood. The author is to be congratulated upon having written this chapter with such judgment that the mother will be aided in her ability to watch over her child properly without thinking herself capable of conducting the medical treatment through an illness. This, probably the most difficult chapter to write well, is one of the best in the book.

In the appendix are given minute directions for preparing various articles of diet, descriptions of the different forms of local and general baths, directions for making some of the principal poultices and plasters, formulæ of different lotions and powders for external use, formulæ for a few simple domestic remedies for use in emergencies, and some miscellaneous directions in regard to massage and the administration of drugs.

The writing of such a book must be difficult chiefly from the necessity for discrimination in regard to the extent to which it is judicious to enter into medical details. To us it seems that Dr. Griffith has well accomplished his work in this respect, neither making too light of the appearances of illness nor unnecessarily causing alarm by mention of possible serious consequences.

PATHOLOGY AND TREATMENT OF DISEASES OF THE SKIN. By MORIZ KAPOSI, Professor of Dermatology and Syphilis in the Vienna University. Translation of the last German edition, under the supervision of JAMES C. JOHNSTON, M.D. Pp. 684. New York: William Wood & Co., 1895.

THE author of this work is so well known to readers of German interested in diseases of the skin that an introduction is unnecessary. Professor Kaposi (the worthy successor to Hebra the elder, in the chair of dermatology in the University of Vienna) presents in this work the principles and practice of dermatology as recognized by the Vienna School of Medicine, of which he is now the chief exponent. The subject-matter is in the form of lectures, and is, therefore, didactic. Pathology and pathologic anatomy receive much attention.

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As is well known, the Vienna school attaches but little importance to internal remedies in the treatment of cutaneous diseases, and the American reader in perusing this book will look in vain for advice upon the use of the many internal remedies constantly employed by physicians in this country in treating such diseases as eczema and psoriasis.

The distinguished author is a Viennese, and not a cosmopolitan, in his views. He pictures graphically diseases of the skin as they are met with in Austria, but accords scanty notice to the work that has been done in other countries during the last decade. Nevertheless, the book is one of the great works of the period, and is full of valuable information, the fruit of a lifelong and abundant experience by an unusually accurate and keen observer. We are, therefore, pleased to see the work translated into English.

The translation has been done freely rather than literally, with here and there the omission of a sentence or a paragraph, doubtless with the view of condensation. We are somewhat in doubt as to whether Dr. Johnston is the translator or not, inasmuch as on the title-page it is stated that the translation has been done under his supervision. In one chapter the term *knötchen* is translated nodule, instead of papule, as it should be. In conclusion, we may say that the book should be in the library of every physician interested in dermatology.

## NEWS ITEM.

***For the James E. Reeves Fund*** we have received from Drs. E. B. Doolittle, 50 cents; A. Cornish, $1; G. W. H. Kemper, $1; H. M. Haskell, 50 cents. We quote the following paragraph from Dr. Haskell's letter:

"Surely the professional conscience, and especially the journalistic, is not so seared as to turn a deaf ear to this call. There ought to be from 50,000 to 100,000 copies sold, and the balance kept as a sinking or trust fund to defend similar cases in the future."

### BOOKS AND PAMPHLETS RECEIVED.

Inebriety or Narcomania: its Etiology, Pathology, Treatment, and Jurisprudence. By Norman Kerr, M.D, F.L.S. Third edition. New York: J. Selwin Tait & Sons, 1894.

Ripening of Immature Cataract by Direct Trituration. By Boerne Bettman, M.D. Reprinted from the Annals of Ophthalmology and Otology, Vol. IV, No. 1, 1895.

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# THE MEDICAL NEWS.

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## ORIGINAL ARTICLES.

### THE OCULAR SYMPTOMS OF LOCOMOTOR ATAXIA.[1]

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VERY important in the diagnosis of tabes dorsalis, and especially in the early stages of the disease, are the ocular symptoms. Every person in whom locomotor ataxia is suspected should be subjected to a careful examination of the eyes, and not rarely it is the oculist whom the patient with developing posterior sclerosis first consults, and upon whom the responsibility rests of first detecting the oncoming disease in perhaps its very earliest stage, when, if at any time, it may be possible to check its progress. The ocular symptoms naturally arrange themselves into three groups: those pertaining to the internal muscles, especially the iris; those concerned with the external eye-muscles; and the changes in the optic nerve, or optic atrophy.

The affections of the internal muscles reveal themselves chiefly in pupillary changes, and these are numerous. The most important are: 1. Reflex iridoplegia. 2. Absolute iridoplegia. 3. Myosis. 4. Inequality of the pupils.

We should add to the pupillary symptoms mydriasis, one form of which would indicate irritation of the cilio-spinal center, and would be analogous to the increased knee-jerk found by Weiss and some others at the beginning of tabes. Instead of spastic mydriasis we may have another form—paralytic mydriasis.[2] Gowers states that the pupils may be even larger than normal, and then, he adds, the skin-reflex can be obtained, though the light-reflex cannot. Eulenburg,[3] among 64 cases, noted mydriasis in 9, myosis in 28, and states that the simultaneous occurrence of myosis and mydriasis occurs only in the late stages of the disease. Seguin found the mydriasis to be symmetric, differing in this respect from Müller[4] and Schmeichler. Hutchinson[5] reports a case in which monocular paralytic mydriasis preceded other ataxic symptoms by three years.

Though not so characteristic as the other changes, pupillary inequality is, according to Schmeichler,[1] the most frequent, while reflex iridoplegia is next in frequency. "Each of these symptoms," he says, "when found in an individual justifies the physician in inquiring for tabes." Jessup[2] says that inequality is often found, and Berger found it in 27.6 per cent. of his cases.

The myosis frequently spoken of as spinal myosis is an important sign of disease of the posterior columns of the cord. The only other disease in which it occurs as frequently is progressive paralysis of the insane. In cases in which the cervical spinal cord is first attacked myosis occurs as a very early symptom. The pupils cannot be dilated *ad maximum* by the energetic use of a strong mydriatic.[3] A characteristic point in the myosis is the fact that the pupil dilated to medium width by atropin requires an unusually long time (frequently from four to five weeks) to become again as narrow as it was before the instillation of the mydriatic.[4] The myosis is due to paralysis of the cilio-spinal center. It is explained by one authority[5] by the fact that paralysis of this center, which sends the vasomotor fibers to the bloodvessels of the iris, allows these vessels to become relaxed and consequently filled with blood, and hence the small pupil results. The longer this condition remains the more slowly will passive dilatation occur. The very minute pupil sometimes seen is, according to Noyes,[6] probably due to secondary contraction of the sphincter pupillæ.

Total iridoplegia, the reaction in accommodation as well as to light being lost, but accomodation itself remaining intact, is sometimes seen, but the most characteristic of all the pupillary changes is reflex iridoplegia, the pupil not responding to light, but reacting in accommodation. This condition is now familiarly known, in honor of the man who discovered it and brought it to the notice of the profession, as the Argyll-Robertson pupil.[7] It is explained as being due to paralysis of the cilio-spinal nerves, which were then regarded as the nerves supplying the sphincter iridis, but is now believed

[1] Read in part before the Cleveland Medical Society, May 10, 1895.
[2] Text-book of Nervous Diseases, vol. i.
[3] Wood's Nervous Diseases and their Diagnosis, p. 340.
[4] Centralblatt für die Gesammte Therapie.
[5] Archives of Surgery (London), July, 1893, p. 54.

[1] Archiv f. Ophth., 1883, xii, pp. 335 et seq.
[2] Ophth. Review, July, 1888.
[3] Norris and Oliver: Text-book of Ophthalmology, p. 484.
[4] Schmeichler: op. cit.
[5] Schmeichler: op. cit.
[6] Diseases of the Eye, 2d edition, p. 435.
[7] Edinburg Med. Journ., 1869, xiv, p. 669, and 1870, xv, p. 487.

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to be due to disease at some distance from the spinal cord, namely, in Meynert's[1] fibers, which connect the corpora quadrigemina with the nuclei of the third nerve. Disease in these fibers may exist by continuity with disease of the cord, and in fact the close relationship between the optic atrophy and the sclerosis of the posterior columns is similarly explained, as Stilling[2] has found fibers passing directly from the optic tract into the crus cerebri, and both he and Edinger assert that this bundle of fibers makes its way through the crus to the pons varolii, and thence to the posterior column of the cord. Noyes[3] says that the Argyll-Robertson pupil may be due to disease of the fibers from the optic tract to the pons varolii, while Turner[4] holds the opinion that it is due to a lesion of the fibers connecting the optic tract and the pupillary nucleus—a statement that accords with that made by Swanzy, though less definite. Mauthner's[5] explanation is that the fibers for the pupillary light-reflex, lying in the wall of the third ventricle, suffer from a chronic ependymitis and a consequent sclerosis, an opinion with which Berger[6] agrees. Kahler, Mendel, and Oppenheim found the oculomotor nucleus intact, with absence of the light-reaction. "Hence," says Knies,[7] "the lesion must be sought in the centripetal fibers to the motor oculi nucleus or in their origin, unless the condition is due to a toxemia." Schmeichler,[8] however, believes that we cannot attribute this reflex iridoplegia to any direct anatomic basis, but that we must assign it to the "generally reduced irritability of the brain due to a morbid process." The whole nervous system, he contends, is inclined to sclerosis, which is, however, most marked in the posterior columns and optic nerves. It is proper, he thinks, to speak of a "diminution of nervous excitability in tabetics, which, while too slight to produce coarse functional disturbances, suffices to disturb the sensitive reflex mechanism of the pupil."

Usually in association with the Argyll-Robertson pupil we find, as was first observed by Erb, that the iris fails to dilate upon painful stimulation of the skin, especially of the skin of the neck. Reflex iridoplegia is sometimes accompanied by mydriasis and occasionally by paralysis of accommodation, but most often by myosis, and not infrequently there is slight irregularity in the outline of the pupil. Eventually the iris often fails to react in accommodation as well as to light. Sometimes we find decided torpor or sluggishness of the iris, but no paralysis; in fact, if we could trace the pupillary condition from the beginning, we should often find this torpor, then loss of reaction to light, then to irritation of the skin, and finally total iridoplegia.

I have said that reflex iridoplegia is the most characteristic of the pupillary changes. Wood says that it probably is pathognomonic of degeneration of the upper spinal cord, including the medulla, and that it occurs also in progressive paralysis of the insane; and Dana also says that it is found practically only in these two conditions. It occurs probably in some cases of nuclear disease,[1] and possibly in disseminated sclerosis; but so rarely is it found in any other condition that its presence alone, says Hansell,[2] would almost warrant the assumption of a commencing posterior sclerosis.

The pupil may rarely be unaffected in tabes. Gowers states that the reflex action to light is lost in more than five-sixths of all cases, and Berger,[3] in a series of 109 cases, found good pupillary reaction in only four (3.7 per cent.), and only in one case with ataxia well marked. Vincent[4] found the Argyll-Robertson pupil 47 times in 50 patients. On the other hand, Nettleship[5] says: "We do not yet know how often it may occur in healthy persons, or without eventual spinal disease. It certainly has comparatively little significance in old persons." Uhthoff[6] found it in a case of carbon-disulphid poisoning. Its loss may be due to preceding syphilis. Gowers[7] reports having seen several cases of loss of light-reflex in syphilitic patients without disease of the spinal cord, and his practical rule is that, apart from general paralysis of the insane, reflex iridoplegia always indicates either syphilis or tabes, and not infrequently both. Erb has described a similar case. So important, however, is this symptom that Spitzka[8] says it "may be regarded as a rule in neuro-pathology that whenever reflex iridoplegia is at any time accompanied by other acute motor disturbance, it is either of spinal origin, or in exceptional cases due to disease of the pons varolii." It is one of the earliest signs of developing tabes. "It may be assumed with safety," says Spitzka, "that in 99 out of 100 cases both the

1 Swanzy: Diseases of the Eye, p. 281: Noyes: Diseases of the Eye, p. 436.
2 Beilageheft zu Zehender's Monatsblätter, xvii, pp. 203–207.
3 Op. cit.
4 Ophth. Hosp. Reports, vol. xiii (Dec. 1892), p. iii, p. 328.
5 Die nucleären Augenmuskellähmungen, p. 353.
6 Archiv f. Ophth., 1890, vol. xix, p. 454.
7 The Eye in General Diseases, p. 192.
8 Op. cit.

1 Norris and Oliver: Text-book of Ophthalmology, p. 543.
2 Journal of the American Medical Association, February 18, 1893, p. 168.
3 Op. cit., p. 450.
4 Des Phénomènes Oculo-pupillaires dans l'ataxie locomotrice. Thèse de Paris, 1877.
5 Diseases of the Eye, fourth American edition, p. 452.
6 Graefe's Archiv, vol. xxxi, 1.
7 Lancet, January, 1891, p. 95.
8 Pepper's System of Medicine, vol. v.

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inability of the pupil to respond to light and the absence of the knee-jerk will be found long before ataxia is developed," though he states that the "loss of co-ordination and the reflex iridoplegia are the most important of the exact prodromal signs." In fact, he declares that one or both of these must be present to justify the diagnosis of incipient tabes; "not even the absence of the knee-jerk ranks as high as these two signs." When present this reflex iridoplegia is permanent and unvarying, and yet even in this regard there are rare exceptions, as Spitzka[1] has reported two cases in which this symptom disappeared, to reappear in two months in one case, and in eight months in the other case.

Berger[2] reports two cases in which this condition was unilateral, and Gowers one such case. Hansell[3] reports a case in which were found anisocoria (inequality of the pupils), unilateral Argyll-Robertson pupil, limited color-field, partial loss of knee-jerk, and fleeting pains in the feet. Recently I myself had a similar case under observation.

Paralysis of accommodation is occasionally met with as an early symptom. Galezowski has reported several such cases, and Berger[4] reports two without paralysis of the sphincter, but with reflex iridoplegia. In the latter stages of the disease this paralysis is more frequent, and Berger reports 23 cases, in "only one-third of which was the paralysis of accommodation accompanied by mydriasis."

The tabetic affections of the external eye-muscles may be divided into two groups, those occurring early in the disease and frequently transient, and those belonging to the later stages of the disease, and more often permanent, though either may occur at any stage.

In regard to the relative frequency of the muscles or nerves affected, the third nerve is the most often paralyzed, the sixth less frequently, and the fourth only exceptionally; but of individual muscles, the external rectus is most frequently affected, while ptosis from paralysis of the levator palpebræ superioris and paralysis of the internal rectus (causing external squint) are next in frequency. Several muscles may be involved, or we may have an "associated paralysis," as loss of convergence with loss of accommodation, although the internal recti act well under other conditions; or a progressive ophthalmoplegia or complete ophthalmoplegia externa. Buzzard[5] reports two cases of ophthalmoplegia externa in tabes, while Hutchinson,[6] in commenting upon six cases of this condition, says: "There can be no doubt that ophthalmoplegia externa is sometimes a part of the general malady known as locomotor ataxia, especially when that disease is due to syphilis."

As the result of paralysis of an external ocular muscle diplopia arises, which is homonymous when internal squint occurs, crossed when there is external squint, vertical if an elevator or depressor is affected, or there may be a combination of the last with either of the former.

Swanzy[1] declares that in "the premonitory stages of tabes dorsalis, ephemeral partial paralysis, affecting now one and again another of the orbital muscles, may sometimes be observed;" and Jeffries[2] says: "In tabes, as has long been known, there has been frequently a history of transitory diplopia during the prodromal period. The origin of these fugacious paralyses is not known, but their significance, when combined with previous syphilitic infection, is gravely suggestive of tabes to follow." All authorities agree that diplopia is not an infrequent early symptom, though they differ somewhat in regard to the percentage of cases showing this condition. Spitzka,[3] for example, found it in 58 out of 81 patients recorded, and Berger[4] in 38 per cent. of his cases, while Erb[5] assigns 27 per cent. of eye-paralyses to tabes, and Moli[6] 39.6 per cent. Sometimes the paralysis comes on gradually and is not noticed by the patient, but more often it causes very annoying diplopia. This may be the first symptom to attract the patient's attention, as in a case that I saw some time ago, in which, however, the patient, upon examination, also exhibited loss of knee-jerk, some ataxia, and slight pains, with the light-reaction of the pupils preserved, but sluggish. Osler[7] says: "The early ocular palsies are of the greatest importance. A squint, ptosis, or Argyll-Robertson pupil may be the *first* symptom, and may exist with the loss only of the knee-jerk." Nettleship[8] also states that tabes may be preceded by paralysis of one or more muscles, and that "there may be for years nothing else to attract attention." Cromwell[9] states that in tabes dorsalis the paralysis (of the eye-muscle) often precedes the other symptoms some months, and, at times, years." This condition occurs very rarely, if at all, in any other form of spinal disease. The importance of this as an early symptom may be inferred from the declaration of Schmeichler[10] that "if a pupillary disturb-

[1] Ibid., p. 850.
[2] Op. cit., p. 454.
[3] Journal American Medical Association, February 18, 1893, p. 168.
[4] Op. cit.
[5] Brain, April, 1882, p. 34.
[6] Transactions Medico-Chirurgical Society, London, 1879.

[1] Diseases of the Eye, 3d ed., p. 432.
[2] Boston Med. and Surg. Journ., Oct. 27, 1892.
[3] Pepper's System, vol. v.
[4] Op. cit., p. 484.
[5] Deutsches Archiv für klinische Medicin, 1879.
[6] Archiv für Psychiatrie, Bd. xiii, Heft 3.
[7] Practice of Medicine, p. 842.
[8] Diseases of the Eye, p. 452.
[9] Amer. Journ. of the Med. Sciences, April, 1884.
[10] Op. cit.

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ance is added we are compelled to suspect tabes, and if lancinating pains appear the diagnosis of posterior spinal sclerosis may be accurately made." Pearce[1] reports a case, in the service of S. Weir Mitchell, of rapid onset, with sudden diplopia, due to paralysis of both external recti, as the first symptom. Hansell[2] cites one in which diplopia was the first symptom observed by the patient, and examination showed an Argyll-Robertson pupil, with the optic nerve normal, the knee-jerk exaggerated, and an absence of ataxia and of pains.

Hughlings Jackson found diplopia to be the first symptom in 6 out of 19 cases.

Ptosis, either unilateral or bilateral, occurs at times as an early symptom, and not infrequently is associated with paralysis of one or more muscles of the eyeball. Six months ago a patient consulted me because of a slight drooping of the upper lid of the right eye. He gave a history of syphilis, and upon close inquiry said that he had sharp pains at times in his legs, and occasionally had "bladder-trouble," with pain in the epigastrium, frequent micturition, and scanty urine. (Urine-analysis was negative.) Argyll-Robertson pupil was present, but there was no ataxia, and the knee-jerk was normal. Vision was normal, as were also the fields for form and color. Two months later the man returned, complaining of diplopia, which was found to be due to paresis of the right internal rectus. Despite the normal patellar tendon-reflex and the absence of ataxia, I am inclined to believe this a case of beginning tabes.

There seems to be a general impression among neurologists that paralyses of the eye-muscles, as manifested in ptosis, diplopia, and reflex iridoplegia, are more common in syphilitic patients.

Sachs,[3] in a paper read before the American Neurological Association in 1893, in attempting a differentiation of the cases of tabes due to an active syphilitic process, considered among that group those that exhibited complete loss of reflex contractility of one or both pupils, and ocular palsies. Spitzka,[4] on the other hand, states that the most obstinate and most severe diplopia he has met in a tabetic patient was in one in which syphilis was positively excluded, and Berger[5] says that he did not find luetic patients to be especially disposed to ocular palsy, although they do show a greater tendency to permanent paralysis and to multiple paralyses.

As to the anatomic cause of these paralyses, Berger says the lesion is nuclear; Förster that they are due to disease in the floor of the fourth ventricle; and Schmeichler[6] that they depend upon a sclerotic process in the vertebral artery, which furnishes the blood-supply to the nuclei of the eye-muscles, as well as the other basal ganglia, and also to the posterior columns of the cord, basing his opinion upon what Adamkiewicz has shown—that the path of tabetic sclerosis is determined by the course of these arterial vessels. Sachs,[1] in speaking along the same line, says that the chief cause of the degeneration of tabes is syphilis, which causes disease of the bloodvessels of the spinal cord, and altered states of the blood may be the prime cause of these changes in the bloodvessels.

Nystagmus has been observed, but is rare. It occurs chiefly with movements of the eyeballs, and is rarely persistent in continuous oscillation, as in multiple sclerosis. Rahlway[2] speaks of having observed it late in ataxia. Berger[3] reports seven cases, one of them unilateral, and Freyer[4] one case in which this was the only ocular symptom. Knies states that these rarer forms are perhaps always due to complications.

Another symptom that should not be ignored is epiphora, which usually is bilateral, but sometimes is unilateral. It is most probably due to weakness of the orbicularis, which may be explained, says de Schweinitz,[5] by the intimate relation of the oculo-facial group of muscles to the nucleus of the third nerve, which is frequently disturbed in tabes; for, according to Mendel,[6] the upper twigs of the facial nerve spring from a separate nucleus, which is in close relationship to the oculomotor.

According to Berger, however, hypersecretion is an important causative factor—a condition that has its analogy in the hyperidrosis of the face sometimes seen in tabes.

The relationship between optic atrophy and tabes is intimate. As regards its frequency authorities differ, ophthalmologists, for example, naturally reporting a higher percentage of cases with atrophy than neurologists. At the very least, 10 per cent. of the patients with locomotor ataxia exhibit more or less of optic atrophy; Gowers says one-sixth; Erb[7] 12 per cent.; Spitzka says if we include the lesser degrees of atrophy the percentage certainly is higher; Dana,[8] 10 per cent. in his experience; Moli, 13.5 per cent.; Uhthoff[9] (nervous clinic), 20 per cent.; Berger,[10] 51 in 109 cases (46.7 per cent.); Lofmarel,[3] 49 in 102 (48 per cent.);

[1] Journ. of Nervous and Mental Dis., 1895, p. 8.
[2] Journ. of Amer. Med. Assoc., Feb. 1893, p. 168.
[3] N. Y. Med. Journ., Aug. 12, 1893, p. 192.
[4] Op. cit. [5] Op. cit. [6] Op. cit.

[1] N. Y. Med. Journ., Aug. 12, 1893, p. 192.
[2] Archiv für Ophth., vol. xxiv, No. 4, pp. 237–317.
[3] Op. cit., p. 484.
[4] Berliner klin. Wochenschr., 1887, No 6.
[5] Amer. Journ. of Ophth., March, 1895, p. 82.
[6] Berliner klin. Wochenschr., 1887, No. 48.
[7] "Zur Pathologie der Tabes dorsalis," Deutsches Archiv für klinische Medicin, 1879.
[8] Text-book of Nervous Diseases.
[9] Archiv für Psychiatrie, Bd. xiii, Heft 3.
[10] Op. cit., p. 455. [11] Quoted by Berger, op. cit., p. 455.

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Cyon,[1] 60 in 203 (29.5 per cent.); Schmeichler,[2] from the cases seen in his eye-clinic, the medical clinic, and the Home for Incurables, 40 per cent. Buzzard[3] found it more frequently in disseminated sclerosis (43 per cent.), next in tabes (15.5 per cent.) and general paralysis of the insane. Calculating the frequency of spinal disease in cases of optic atrophy, Uhthoff,[4] in an analysis of 183 cases of optic atrophy from causes outside the eye, found it to be due to disease of the spinal cord in 59 cases (32 per cent.). Charcot believed that almost all cases of so-calied simple atrophy ultimately present spinal symptoms; Gowers[5] about one-half; and Galezwoski about two-thirds.

Peltesohn[6] finds about 40 per cent. of the cases of non-neuritic progressive optic atrophy in Hirschberg's clinic to be associated with spinal or cerebrospinal disease, and among 486 cases[7] he found 78 cases of tabes (15.7 per cent.). In a series of 76 consecutive cases of progressive atrophy Nettleship[8] reports decided spinal symptoms in 58, and of the remaining 18 several showed one or more symptoms that were probably of spinal origin. He is furthermore of the opinion that in the cases without signs of spinal disease, if they could be followed for a sufficient number of years, symptoms of such involvement would eventually appear.

Optic atrophy is usually an early, sometimes the initial, symptom of tabes. If the patient reaches the second stage without it, he will probably escape it altogether. There appears to be, as has been noted by many observers (Osler, Ferrier, Gowers, Buzzard), what might be termed an antagonism between the optic atrophy and the ataxia. When the former is an early and decided symptom ataxia is not likely to be marked, while in the cases in which the latter symptom is present the atrophy is rare or of very slight degree. Martin[9] claims that "when blindness from atrophy of the optic nerve occurs at an early period, especially when it runs a rapid course, a slow course of tabetic symptoms proper may be expected." Benedikt[10] is of the same opinion, and says that "it is a rule without exception, so far as my experience goes, that motor tabetic symptoms subside, however severe they may have been, as soon as atrophy of the optic nerve begins. The latter symptom, however, presents a very unfavorable prognosis." It may occur before any symptoms referable to the cord, as in a case mentioned by Gowers, in another by Bramwell,[1] and in seven cases by Berger.[2] Buzzard[3] records a case of not infrequent type, in which the only other symptom was loss of knee-jerk. The atrophy sometimes continues for years without any other symptoms.

Berger says that cases with ocular paralyses are slightly more disposed to atrophy, and the converse is also true. The left eye is oftener attacked than the right. "In general, paralyses of the external ocular muscles are found disproportionately oftener in cases showing optic atrophy than in cases uncomplicated with optic atrophy;" and "the cases with paralyses of the ocular muscles are more disposed to optic atrophy than the cases without paralyses." The change is usually more advanced in one eye than in the other, but it is rare to find complete atrophy in one eye and a normal nerve in the other. Schmeichler says that he has "never observed in tabes that one optic nerve was completely atrophic while the other eye enjoyed perfect vision."

The first result of a developing atrophy is in the color-perception, as shown by contraction of the color-fields when measured by the perimeter. Green, which excites the fibers least, is the first to be affected and to disappear; red follows, and the perception for blue is longest retained. The form-field then begins to suffer contraction and at the same time usually, or even a little earlier, vision begins to fail. Berger,[4] however, says that "contraction of the visual field precedes affection of the color-sense" and declares also that "no relation exists between the contraction of the visual field, the color-fields, the disturbances of central vision and of color-perception;" and with this opinion Leber[5] and Michel agree. My own experience does not accord with that of Berger, but agrees rather with that of Knies,[6] who holds that "central vision usually possesses a definite relation to the narrowing of the visual field, and is so much more impaired the more the boundaries of the field approach the point of fixation." Thus, optic atrophy is usually a gradual process, but occasionally it may be rapid. In the most rapid case recorded by Berger the atrophy took place in two months, and in the slowest in seventeen years. Hirschberg[7] reports a case in which vision was almost lost in eight weeks. It will usually progress to complete or almost complete blindness, with only light-perception remaining, but rarely it may advance to a certain stage and then stop. The contraction of the fields is usually concentric, though more marked at the temporal side (Förster) and

[1] Quoted by Berger, op. cit., p. 455.
[2] Archiv f. Opth., 1883, xii, p. 335.
[3] Brit. Med. Journ., Oct. 7, 1893, p. 779.
[4] Graefe's Archiv f. Ophth., 1880, xxvi, Abth. 1.
[5] Text-book of Ophthalmoscopy, p. 141.
[6] Quoted in Archiv f. Ophth., xvi, p. 142.
[7] Centralblatt f. Augenheilk., Bd. x, pp. 45, 75, and 106.
[8] Diseases of the Eye, p. 61.
[9] Arch. f. Augenheilk., 1890, p. 122.
[10] Wiener med. Wochenschr., Aug. 14, 1887.

[1] Diseases of the Spinal Cord, 2d ed., p. 192.
[2] Op. cit. [3] Brain, 1878, No. 2, p. 168.
[4] Op. cit., p. 460.
[5] Graefe and Saemisch's Handbook, vol. vi, p. 864.
[6] The Eye in General Diseases, p. 185.
[7] Klinische Beobachtungten, 1874.

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somewhat irregular. Rarely, however, a sector-like defect is met with, as in a case reported by Gowers[1] and in one by Uhthoff;[2] or one-half of the field is lost (Gowers,[3] Treitel,[4] and Berger[5]). Central loss of vision is even more rare, but a case of this kind is reported by Gowers[6], and Berry[7] also speaks of it. Bunge[8] reports a case, but does not go into details; Althaus[9] one case; and Berger two cases, one undoubted, with peripheral contraction first and scotoma later. So rare, indeed, is this last that Förster[10] says that if an atrophy begins with a central defect or central scotoma, it indicates that "we are not dealing with a tabetic atrophy."

Although it is true, as Stellwag[11] says, that vision is not "in direct proportion to the ophthalmoscopic appearances," or, as Knies[12] declares, that "there is often a disproportion in both directions between the visible atrophy of the nerve and the disturbance of vision," yet the condition of the veins can usually be readily recognized, even before vision begins to fail much. The essential ophthalmoscopic change is the discoloration of the papilla, which becomes of a grayish or bluish-white color. Mauthner[13] contends that the earliest and most important symptom in beginning atrophy is attenuation of the vessels, but Leber says that this is true only in neuritic atrophy and not in true primary atrophy. The vessels are about normal in size, except in the very late stage, when they often become narrowed. Schmeichler says that often one or more veins, usually the lower, are larger than normal and may be even twice the normal width.

The disc appears flat or slightly excavated, with its edges sharply defined, and is of an opaque bluish-gray color, while the dots of the *lamina cribrosa* become more visible, causing a "stippling," and the minute vessels of the disc are absent.

Before concluding I shall briefly report a case in which the ocular symptoms formed an important element in the diagnosis:

A. K., aged thirty-five years, was referred to me by Dr. H. S. Upson for examination. The patient had complete loss of knee-jerk; station was bad, and the gait was markedly ataxic; but there was no pain. The diagnosis lay between locomotor ataxia and multiple neuritis. Examination of the eyes showed pupils that responded readily to light and in accommodation; the external eye-muscles were normal; the optic nerves presented not the slightest indication of atrophy. Not only was vision normal after correction of the astigmatism, but the form-fields and, what was even more significant, the color-fields were perfectly normal. As a result of the eye-examination, multiple neuritis was suspected rather than tabes; and under treatment all the symptoms rapidly improved, the ataxia disappeared, and the knee-jerk returned to normal.

In conclusion, then, we should never lose sight of the importance of the ocular symptoms in all suspected cases of locomotor ataxia, and their value both in diagnosis and prognosis. Such examination should have regard to (1) the internal eye-muscles, as shown by the size of the pupils and their mode of response to light and accommodation; (2) the external eye-muscles (including the elevator of the upper lids), which so often are paralyzed, causing diplopia or ptosis; (3) the condition of the optic nerve, which in so large a percentage of cases undergoes more or less atrophy.

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[1] Ophthalmoscopy, p. 125.
[2] Archiv f. Ophth., 1880, vol. xxvi, p. 277.
[3] Ophthalmoscopy, p. 124.
[4] Archiv f. Ophth., 1879, vol. xxv, p. 61.
[5] Archiv f. Ophth., vol. xix, p. 471.
[6] Ophthalmoscopy, p. 127.
[7] British Med. Journ., Oct. 7, 1893, p. 784.
[8] "Ueber Gesichtsfeld und Faserverlauf im opt. Leitungsapparate," Halle, 1884, p. 13.
[9] Krankheiten des Rückenmarkes, 1885, p. 104.
[10] Handb. v. Graefe-Saemisch, Bd. vii.
[11] Lehrbuch der praktischen Augenheilkunde.
[12] The Eye in General Diseases, p. 186.
[13] Lehrbuch der Ophthalmoscopie, 1868.

## IS THE PHYSICIAN IN ANY WAY RESPONSIBLE FOR THE HIGH MORTALITY AMONG THE NEWLY BORN?[1]

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IN a recent address before the Society for the Protection of Children in France, the chairman, Dr. Rochard, stated that 250,000 infants perished annually, and that, in his opinion, 100,000 of these lives might be saved. The world knows that France is much alarmed over the fact that the nation is not increasing in numbers. Dr. Rochard points out that the country might be repopulated simply by diminishing this waste of infant-life. History furnishes several examples of the disastrous results following diminution of a nation's numerical strength. Infant-mortality might become a national question of great importance, and the State has a right to demand from the medical profession the causes that annually deprive her of so many lives.

In the first place, is it true that the mortality among the newly born is high? The term newly born is applied to the infant during the first month or six weeks of its existence. Eröss, taking sixteen large European cities as the basis for computation, states that 10 per cent. of children born alive die during the first four weeks of life. Oesterlen[2] states that the mortality of the first month makes up 42 per cent. of the deaths of the first year of life.

[1] Read before the Buffalo Medical Club, April, 1895.
[2] Handbuch der Med. Statistik, 1874.

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Uffelmann[1] says that the mortality of the first four weeks is about equal to the mortality of the second and third years of life added together. One-quarter of all the deaths, up to the age of five years, occur in the first month of life. Smith[2] says that in England, where there is an accurate registration of births and deaths, among every 100 children born alive there are four or five deaths during the first month. He quotes a French author who places the mortality of the first month at 10 per cent.

In this country, owing to deficient registration of births, the statistics are unreliable, but all authorities agree that during the first month the mortality is very heavy. Think of the loss to a community represented by the enormous mortality of the first year of life, and then bear in mind that the first two weeks in the first month form the most critical time in this year and the very time during which the child is likely to be under a physician's observation. While there may be differences of opinion as to the exact mortality among the newly born, the facts show this mortality to be so great as to demand a positive answer to the question at the head of this paper.

Undoubtedly the mortality of the first month of life will always be high, for many of the deaths are unavoidable. There is a marked tendency, however, among physicians to ascribe to Divine Providence results brought about by their own ignorance and neglect. If it can be shown that a large number of the deaths among infants result from diseases that we usually consider preventable, we can no longer shield ourselves by casting the responsibility elswhere.

To learn anything definite about the newly born a large number of children must be studied. Eröss,[3] of Budapest, has recorded observations of 1000 infants. These children were examined twice a day and sections were performed upon all that died. Upon each visit the temperature was taken, with the striking result that in 430 of the children fever-temperatures were noted. Being surprised at this, Eröss used the thermometer among his private patients. He selected forty-two infants that were so situated as to receive the very best of care, and in twelve instances found fever present. He states that in most of these children the rise of temperature was the first sign of disturbance, and without the use of the thermometer his attention would not have been attracted to the infant. The lesson from this is obvious.

In 79 of the 430 feverish infants no cause for the elevation of temperature could be found; 220 presented evidences of disease of the cord or navel; 108 suffered from dyspepsia or intestinal catarrh, which, in many of the cases, was due to septic infection. Other diseases found among these 430 were bronchitis, pleuritis, peritonitis, meningitis, etc. This report of Eröss is full of valuable information, but the important facts for us are that 220 children showed disease of the cord and that many of the other diseases were those in which we recognize infection as a cause.

The same authority,[1] in another article, reports the results of observations upon 1000 children regarding diseases of the navel and the infections resulting; 680 infants presented some abnormality in the healing of the navel-wound; this abnormality, in many instances, being associated with serious disease of the organism.

It is now generally admitted that septic infection plays a most important *rôle* in the loss of life among the newly born. Epstein[2] says that much may be done to diminish the death-rate from pyo-septicemia in the newborn, which is too common even in private practice and under the most favorable surroundings. The most common entrance for septic matter is the umbilicus.

Fischl,[3] from a careful study of histories, sections, and bacteriology, in twenty-two newly born, comes to the following conclusions:

1. During the first few weeks sucklings are not uncommonly infected by septic microbes. The clinical and anatomic signs of this infection may be those of an acute or subacute gastro-enteritis, capillary bronchitis, or lobular pneumonia.

2. The grounds for classing these diseases in the group of septico-pyemias of the newborn is the close similarity, in histologic and bacteriologic conditions, between these affections and those diseases that, both clinically and anatomically, pass as septico-pyemic.

3. The histologic character of the organic changes consists in necrosis of cells and interstitial inflammation, with a tendency to hemorrhages. The microscopic changes in the mucous membrane of the gastro-intestinal canal may be slight or entirely wanting, even in cases in which the symptoms are most severe.

4. By means of culture-tests and inoculation-tests, streptococci aud staphylococci are found in various organs, especially in the lungs.

5. The paths of infection are the navel-wound, with or without alterations in its healing, the food, and inspiration. The latter way is one of the most common and leads to the development of prominent pulmonary symptoms.

[1] Handbuch der privat. u. œffentlich. Hygiene des Kindes, 1884.
[2] Diseases of Children.
[3] Archiv für Gynäkologie, Bd. xliii, H. 2.

[1] Archiv für Gynäkologie, Bd. xli, H. 3.
[2] Jahrbuch für Kinderheilk.
[3] Zeitschrift für Heilkunde, Bd. xv, H. 1.



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6. Acute dyspeptic diseases and genuine pneumonias are rare, and their prognosis is much more favorable than when gastro-intestinal or pulmonary symptoms accompany septic infection.

Tavel and Quervain[1] describe two cases of hemorrhage occurring in the newborn in which bacteriologic investigation of the blood was made. In the first case a purulent discharge from the umbilicus was noticed a few days after birth and multiple hemorrhages occurred ten days later. The post-mortem examination showed double pneumonia, with blood-stained fluid in the pleural cavities. The examination of the blood and organs revealed the presence of large numbers of streptococci. In the second case death took place from pneumonia. Hemorrhages were found in the pericardium, brain, and beneath the dura. Large numbers of staphylococci were present in the blood.

Escherich[2] says that trismus neonatorum is due to local infection of the umbilical wound. He reports three cases, in each of which there was septic inflammation of the navel, with peritonitis in one case and pneumonia in two.

Hirst[3] has reported the results of section in five children dying from septic infection through the umbilicus. In his opinion the average physician does not recognize the fact that septicemia of the newly born is common.

If the study of large numbers of newly born children and the opinions of distinguishd specialists carry any weight, we must recognize septic infection as an important factor in infant-mortality. It is also important to remember that the symptoms produced by this infection are varied and obscure.

Every newborn child has a physiologic wound. As the umbilicus is a recognized highway for infective bacteria, and may itself be the seat of septic inflammation, I make no apology for calling attention to this small area of the body.

Normally,[4] the amniotic sheath of the cord ends at a ring of skin upon the abdomen, but Wharton's jelly continues down to the subcutaneous and perivascular connective tissue. After the dead stump is cast off the umbilicus should heal by granulation, like any other wound. There are, however, certain reasons why infection is easy and the results serious: (1) the position of the navel-wound and its close relation to the peritoneum; (2) it contains the mouths of three large vessels; (3) its contact with moist, dead tissue.

There are certain anomalies that result in producing a large wound or disturb its healing. The most common of these anomalies are prolongation of the skin upward upon the cord, continuation of the amnion upon the abdomen, and a fleshy core projecting into Wharton's jelly.

Among a thousand infants Erőss found 22 per cent. suffering from navel-infection. Last year Doktor, of Budapest, showed how this percentage of infection could be lowered by more careful attention to the dressing of the cord. He studied 1200 children before he arrived at a satisfactory result. He found the following to be the best method: With a sterile ligature the cord is tied as close to the abdomen as possible, and with sterile scissors cut close to the ligature. Aseptic cotton is applied, and the dressing is not touched for three days. After the third day the dressing is changed every other day until the stump has dropped off. To insure rapid mummification the child is not bathed until the stump has separated, after which time there are daily bathing and dressing of navel. The care of the cord is carried out with the customary surgical details as to antisepsis, and is intrusted to the physician instead of the nurse; 230 children treated in this way showed a diminution of navel-infection from 22 per cent. to 3.46 per cent. Epstein condemns moist dressings and antiseptic powders. The navel-wound should be treated on ordinary surgical principles, namely, asepsis and avoidance of irritation. The physician has no right to leave this matter entirely to the nurse.

It is true that the traditions of a hundred years are violated by postponing the first bath for several days, but this causes no harm to the child. Doktor found a proportionately greater increase in weight and less skin-irritation in infants whose bathing was deferred. In this connection some observations of Liebreich[1] are interesting: "The *vernix caseosa*, which has hitherto been regarded as superfluous filth, cannot be taken as such. It is not a glycerin-fat, but consists of cholesterin-ether. This substance is germ-proof and air-proof. From this we conclude that Nature has given the child a natural protection against bacterial infection. The first bath should allow a reasonable amount of vernix to remain as a protection to the pores of the skin."

There does not seem to be much danger of hemorrhage in tying the cord so close to the abdomen, as in only one case in one-hundred did Doktor notice even slight oozing.

When the lying-in woman shows signs of sepsis, usually some one is to blame. During and after confinement we observe every antiseptic precaution, and, not content with this, on each visit we take the mother's pulse and temperature, recognizing the fact that forewarned is forearmed. Does the child usually receive so much attention from the physician? Its care is the province of the nurse,

[1] Centralblatt für Bakteriologie.
[2] Wiener klinische Wochenschrift.
[3] THE MEDICAL NEWS, Jan. 9, 1892.
[4] Doktor: Archiv für Gynäkologie, Bd. xiv, H. 3.

[1] Medical Record, April 23, 1893.

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perhaps an incapable one at that. Information about the child filters through the nurse or the mother to the physician. If the baby becomes ill enough to attract some one's attention, the doctor examines its condition, and perhaps discovers a disease already well advanced. The physician has never seen a case of septic infection in a newborn child for the same reason that the old practitioner never saw a ruptured perineum. Diseases of the newly born form a *terra incognita*, because the physician does not take the trouble to observe. Eröss found that out of 496,000 deaths of newly born children 45,000, or 9½ per cent., were ascribed to congenital weakness. What more need be said to support the charge of ignorance and neglect on the part of the medical profession regarding the newly born? Exact observation shows that very many children become ill during the first eight or ten days of life, and that the term congenital weakness is on a par with heart-failure.

The baby's life is held too cheaply, and too often the term "little stranger" expresses the feelings of the physician toward the newborn child. During pregnancy and confinement we are constantly reminded that we have charge of two lives, and after delivery the responsibility is in nowise diminished.

Instruction in our medical schools is lamentably deficient on diseases of the newly born. Can any recall many clinics devoted to this subject? In view of the high mortality among young babies are our schools not bound to furnish better instruction on this subject?

Long custom has intrusted the care of the newborn child almost entirely to the nurse. Cutting the cord and handing the child to the nurse are often a ceremony of great solemnity. To the mind of many a physician it represents the severance of his responsibility from the child and the formal transfer of his duties to another. There must be a reform in this matter. The first step toward saving these children's lives is the awakening of a proper appreciation regarding the physician's responsibilities. I need merely remind you of the brilliant results obtained from the proper *medical* care devoted to the healing of the umbilical wound alone.

I am aware that I have by no means exhausted this subject. It would be perfectly proper to go back to the time of labor and show how the lack or improper use of obstetric measures may result in bringing forth a child in poor condition to begin the battle of life. That part of the subject is large enough to furnish an essay by itself.

I will conclude by summing up some of the conclusions that seem to be justified by facts:

(1) The mortality of the newly born is both absolutely and relatively disgracefully high.

(2) Septic infection causes a part of this mortality, and is preventable.

(3) Asepsis should be observed about the newborn child. Dirty fingers or instruments should not be introduced into the child's mouth in cases of asphyxia. The child should not be allowed to ingest pus with its milk.

(4) The navel should be treated on modern surgical principles and have the personal supervision of the physician.

(5) The physician should take the child's temperature as well as that of the mother, bearing in mind that many of the septic diseases have an insidious approach, and that the importance of the thermometer cannot be overestimated.

(6) The navel-wound may be the path of infection without showing signs of local inflammation.

(7) Close observation of the newborn infant will teach the physician much and benefit the child greatly.

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## RUPTURE OF THE LONG HEAD OF THE BICEPS BRACHII MUSCLE ASSOCIATED WITH RHEUMATOID ARTHRITIS.[1]

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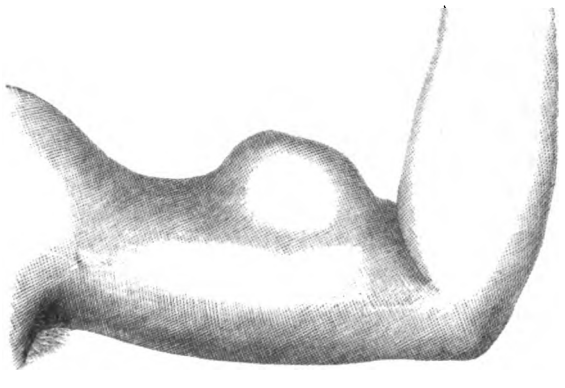
RECENTLY two cases of rupture of the long head of the biceps muscle of the arm came under my notice which are of interest to physicians as well as to surgeons. Their histories are as follows:

The first case is in a laboring-man, aged thirty-seven years, who has had pain in the left hip and leg and right shoulder-joint for the past six weeks. The trouble in the hip and leg was painful and annoying, but has improved somewhat. The pain in the shoulder, on the contrary, has been very marked, and so disabled the patient as to cause him to apply for treatment. He has but little power in the arm.



Six days ago he noticed a lump on his right arm, which became more marked when the elbow was flexed. He states that he has no knowledge of having strained the arm in any way, and is not able to connect the appearance of the lump with any muscular effort. On examination the shoulder appears somewhat atrophied, and distinct grating can

[1] Read (and Patients Exhibited) before the College of Physicians of Philadelphia, May 1, 1895.

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be felt and heard when the head of the humerus is rotated. On contracting the biceps muscle and flexing the elbow a marked lump occurs instead of the gentle swell of an intact muscle. This mass is evidently composed of that portion of the biceps attached to the long tendon. The unaffected portion of the muscle attached to the short tendon can readily be seen and felt to the inner side. The upper portion of the lump diminishes in a fusiform manner into the long tendon, which can be felt as a rounded cord disappearing in the axilla beneath the edge of the deltoid muscle. The shape of the enlargement varies according to the amount of the contraction of the muscle. The accompanying sketch shows its customary appearance. (See figure.)

The second case occurred in a blacksmith, aged sixty years. When twenty-five years of age he had an attack of rheumatism, which began in the feet and then involved the knees and hips. He was confined to bed for four or five weeks. At this time his arms were not affected. Nine months ago he was seized with pain in the right shoulder, which was so severe as to prevent him from sleeping and to deprive him of all use of the arm; so he stopped work, and has done none since. The pain lasted two months, and during this time there was nothing unusual seen about the arm. Four months ago, while under the care of Dr. Goodman, he noticed a lump on his right arm above the flexure of the elbow. This came without his knowledge, and did not supervene on any violent exertion. On examination the shoulder-muscles are seen to be atrophied, and the lump is evidently the long belly of the biceps muscle. Its upper portion can readily be felt to be prolonged into the long tendon, which disappears under the edge of the deltoid. The creaking and grating in the shoulder-joint, at first present, have now almost gone; the pain, though lessened, has not entirely disappeared. The power of the arm is much weakened, though the man can flex and extend it readily. Yesterday he drew my attention to his left knee, complaining of pain in it. Examination revealed a tumor, three-quarters of an inch in size, at the upper and outer border of the patella, which seems at times to move with the patella, but is evidently quite closely connected with it and in all probability is one of the fibro-cartilaginous growths that occur in the fibrous structures in the neighborhood of joints in those affected with rheumatoid arthritis.

Cases like these may come under the notice of either a physician or a surgeon. When the disease is somewhat obscure in its manifestations, particularly in its early stages and when several joints are affected, the patient, thinking he has rheumatism, is likely to apply for treatment to a physician; when, however, the local symptoms are marked, particularly if confined to a single joint, then he is likely, as did these two patients, to apply to a surgeon.

Rupture of one of the tendons of the biceps muscle is not particularly uncommon; four of such cases have come under my notice. Three were of the long tendon and one of the tendon of insertion at the bend of the elbow. The rupture is likely to occur either suddenly from violent exertion, or it may only be made known by the finding of an unusual lump at the seat of the muscular swell of the biceps in a patient suffering from disease of the shoulder-joint.

The tensile strength of healthy tendon is so great that it is my belief that true rupture is much rarer than is usually supposed, and that when a tendon does rupture it is very likely to have been diseased. Some cases that result from violent muscular contraction are, in reality, tearing loose of tendons from the muscular or bony tissue. One of the four cases I have seen was of that character. The patient was a young man, an athlete, who, while warding off a blow in sparring, felt a pain in the tendon of insertion of the biceps above the elbow, with loss of power in the arm. Dr. Beates, under whose care he was, stated that the belly of the muscle was drawn up, while the tendinous lower end could be distinctly felt with the fingers lying beneath the skin to the inner side of its normal position. By gentle manipulation the man was able to bring the lower end of the tendon opposite to the upper end, which was also gently pressed down into position, and by means of a suitable dressing the parts were retained in place. I saw the patient many months afterward, when union had occurred, and he had such good functional results that he ventured again to put on the gloves. The cause of the rupture in this patient undoubtedly lay in the pathologic condition of the muscle, because he was at the time of the injury muscle-bound, and had been for some time. Had the tendon itself been ruptured its lower piece would have been too short to be manipulated as it was. Rupture of tendons occurs in children with extreme rarity, their tissues not yet having begun to degenerate.

Bryant[1] details the case of a boy, aged eight years, with rupture of the biceps femoris tendon at the point of insertion into the fibula. Here again it is the point of junction of the tendon with the part to which it is attached that is involved, and not the tendon itself.

The cause of rupture of tendons is usually their being weakened by the disease variously known as rheumatoid arthritis, arthritis deformans, rheumatic gout, osteo-arthritis, etc. Robert Adams,[2] to whom we are indebted for our most accurate knowledge of this disease, describes the condition that it produces as follows: "Should we have an opportunity of examining the anatomical conditions of the tendons in and immediately around the shoulder-joint in any case in which the disease had existed in an

[1] Surgery, vol. li.

[2] Rheumatoid Arthritis, 1873.

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early stage, New England shall find that these structures resemble tendons which had been for a long time macerating, and that they have their fibers widely separated from each other, as if they were about to resolve themselves into their primitive elements." (P. 97.) "As to the tendon of the biceps, except in those cases in which an opportunity is afforded to us of examining a shoulder-joint in which the disease is of an early stage, we usually observe that the whole of the intra-articular portion of it has been removed. The remains of the portion of the tendon of the biceps external to the capsule will be found to have contracted firm adhesions to the summit and edges of the bicipital groove." (P. 98.)

Rheumatoid arthritis is not a rapidly fatal disease, and just as Mr. Adams, as quoted, attributes absorption of the biceps tendon to a late stage of the disease, so likewise do his successors. That the tendon does rupture, and does become absorbed, is alluded to and well recognized by some writers, although many descriptions of this disease in medical works fail to make reference to this fact; but they universally associate it with more or less disorganization of the joint, and cause it to be considered as a late phenomenon in the progress of the affection. The contrary is true. It is likely to be a comparatively early symptom. Long before the marked change occurs that one sees in the familiar illustrations in the text-books the continuity of the tendon may be destroyed. In the first case reported here the disease had only been present for five weeks when the rupture occurred, and that, too, without the patient being cognizant of it, thus showing that the solution must have been nearly or quite complete. In the second case the disease had existed only five months when the rupture occurred. This is comparatively early, considering that the disease lasts for many years. In both patients the disorganization of the joint could not have been so very extensive, considering the slight restriction of motion that existed. In some cases the affection seems to involve the interior rather than the exterior of the joint, and the changes proceed outward. One can readily see why the biceps tendon, lying inside of the capsule, and only separated from the main joint-cavity by a synovial sheath, should be early affected and destroyed.

The line separating cases of rupture due to violence from those due mainly to disease is not always so sharply marked as the three cases detailed would seem to indicate. This is shown by the fourth case, which I saw some years ago. It occurred in a man advanced in years, and supervened on some violent exertion. He was, however, the subject of rheumatoid arthritis, and it is likely that in his case the tendon had been somewhat weakened by the disease and was partly absorbed, so that when the violent contraction of the biceps occurred it caused the weakened tendon to break. Is it not possible that the fibrous and tendinous insertion of muscles, particularly those inserted close to the articulations, may become affected by rheumatoid disease and so weakened as to cause their rupture without other appreciable signs of the disease? I am inclined to think so.

Bryant[1] says: "When one tendon breaks the other usually follows at a later date, thereby clearly indicating that they give way from some disease which affects their elasticity." Dr. J. Roberts Bryan informs me that he had a patient advanced in years who sustained a rupture of the quadriceps tendon just above one patella, which was followed several months later by rupture of the tendon on the opposite side at the same place; yet no other evidences of rheumatoid disease were present. If it is a fact that such cases are due to a weakening of the tendon by rheumatoid disease, it indicates the desirability of advising the patient to guard against any sudden, violent muscular effort, and may give us some clue to a correct prognosis as to the future course of the affection.

E. Pagenstecher[2] reports two cases of rupture of the biceps muscle, one occurring in a strong, muscular man while lifting a quarter of beef, and the other in an athlete. The histories are not complete enough to judge as to the causes favoring their occurrence.

255 SOUTH SIXTEENTH ST.

## ORIGINAL ADDRESS.

### *THE AMERICAN MEDICAL WOMAN.*[3]

BY FRANCES EMILY WHITE, M.D.,
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THE present age is often called "the woman's age," and the woman of to-day is somewhat dubiously dubbed "the new woman." But, although the medical woman is a woman of to-day, she is not altogether new—not absolutely *fin de siècle*. Isolated accounts of doctors of medicine who were also women are scattered through the medical annals of all ages. Even Æsculapius (whose history is obscured by the mists of mythology) is said to have been followed by disciples of both sexes, and a college of physicians of both men and women existed in Egypt in the eleventh century B.C.

Women skilled in medicine also play conspicuous *rôles* in the great dramatic poems of the Greeks. Thus Homer, in describing one of the characters of the *Iliad* (Prof. Blaikie's translation), says:

> "A leech was she, and well she knew
> All herbs on ground that grew."

From the eleventh to the thirteenth century, A.D., the famous school of Salerno (said to form the bridge

[1] Surgery, vol. ii, p. 292.
[2] Berliner klinische Wochenschrift, April 22, 1895.
[3] Address delivered to the graduating class of the Woman's Medical College, in the American Academy of Music, Philadelphia, May, 1895.

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between ancient and modern medicine) boasted several renowned women-lecturers, and from that time to the present women have occasionally held chairs in various medical schools of Italy.

France, also, has accorded royal recognition to her distinguished daughters, Mesdames Boivin and Lachapelle—names familiar to all readers of medical literature.

But to the women of America, aided and abetted by justice-loving and generous American men, belong the distinction and the responsibility of inaugurating the first systematic effort toward the annexation of the medical field to the somewhat restricted territory recognized as lying within the legitimate sphere of woman.

During the colonial period, much of the medical practice in New England was in the hands of women whose sole qualifications are said to have been acquired in the rearing of large families, and there is no record of any serious conflict between the two kinds of activity. But as the practice of medicine became more scientific, there was an increasing tendency toward its restriction to those who had received a scientific training, and the practice of midwifery thus passed out of the "sphere of woman." But the promise and potency of the medical woman of to-day were latent in the conditions of the colonial age, and the Pilgrim mothers (who, as wittily pointed out by one of their remote sons, a citizen of Philadelphia, not only endured the common hardships of the period, but also endured the Pilgrim fathers), those dauntless daughters of an exigent situation, were the logical as well as chronological predecessors of women destined to share both the burdens and the privileges of American, medical, professional life.

In the history of the slow and difficult development of the untrained American midwife into the educated and legally qualified doctor of medicine the year 1849 must ever remain luminous—a red-letter year—the year in which Elizabeth Blackwell acquired the degree of Doctor of Medicine in an American school—the Medical College of Geneva, New York. In being the first woman in America to receive the medical degree, Elizabeth Blackwell unwittingly became the mother of us all—"the baby figure of the giant mass of things to come"—for tradition has it that the difficulties that she had encountered and the grave uncertainties that hung around the future of other women-aspirants for the medical degree first turned the minds of certain men and women of Philadelphia toward the unprecedented project of a medical school for women. Be this as it may (for the fruitful germ of this enterprise has been ascribed to more than one source), the coming event cast its shadow forward upon the retreating footsteps of this herald of a new evangel for women as she passed through Philadelphia on her way to Europe for further study; and the following year proved to be a second red-letter year in the history of the American medical woman—the year 1850—a date that adorns and dignifies the modest front of the Woman's Medical College of Pennsylvania.

There are two claimants to the distinction of being the first medical college for women in the world—the school in Philadelphia and a school in Boston, formerly "The New England Female Medical College." To this long-standing controversy I am able to contribute the following facts, obtained (in the case of the party of the other part) by myself from the archives of Massachusetts, which are preserved at the State House in Boston, guarded by the classic cod-fish (emblem of an early Massachusetts industry), and sheltered by the great gilded dome that accentuates Beacon Hill and dominates the consecrated precincts of the Common. The facts obtained from this unimpeachable source are as follows:

In the year 1848 there was organized in Boston a society of which the object was to provide women with the instruction necessary to qualify them for the practice of midwifery, which (as already explained) had long before passed into the "sphere of man." A school was opened and lectures on the subjects of midwifery and general medicine were provided. In April, 1850, this society was incorporated under the name of "The Female Medical Education Society" for the stated purpose of providing for the education of "midwives, nurses, and female physicians." But although the words "female physicians" occur in the act of incorporation, the charter did not grant the right either of appointing a medical faculty or of conferring the degree of Doctor of Medicine, and in 1856 a new charter was obtained by "an act to change the name of the Female Medical Education Society to the New England Female Medical College, and to reorganize the same." Section 4 of this act sets forth that "the trustees shall have power to appoint professors who shall constitute a medical faculty, and to confer the usual degree of Doctor of Medicine." The Medical Education Society thus became a medical college in 1856.

The charter of the Woman's Medical College of Pennsylvania was granted in March, 1850, and the first session of the school was opened the following October with a full faculty, organized for the instruction of women in the various departments of medicine, the corporation being authorized to appoint such a faculty and to confer the degree of Doctor of Medicine on graduates of the school. The college in Philadelphia thus antedates the college in Boston by more than six years, and even should the date of the incorporation of the society from which the Boston college sprung—April, 1850—be claimed as the date of the founding of the college (which seems to me wholly unjustifiable), the palm of priority must still be conceded to the college in Philadelphia chartered in March of the same year—a difference in its favor that might prove of immense importance in case, for example, some future millionaire should bequeath a fortune to the oldest medical college for women in the world. I would suggest, however, as a harmless precaution, that this future legal instrument contain the name of The Woman's Medical College of Pennsylvania in full!

Although our college had a less brilliant inauguration than the school in Boston (the Female Medical Education Society numbering more than 1500 members, many of them among the most influential citizens of New England), the subsequent history of the two institutions well illustrates the significant saying that "the blood of the martyrs was the seed of the church." The prolonged struggle of the college in Philadelphia and the lifelong devotion to its interests of a few women (two of whom were members both of the Board of Corporators and of the Faculty) have borne a rich harvest in the high standing accorded to the college by the profession at large, and in a world-wide reputation outside the profession.

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The New England College, on the contrary, soon after the death of Mr. Samuel Gregory (the leading spirit both of the Society and of the Board of Trustees of the College), repudiated the broad scientific principles on which it had been established, and became merged in the School of Medicine of the Boston University—a homeopathic, coeducational school—the university itself (a *parvenu* among universities) being too little known to confer any standing on the college, which had forfeited its claim on the regular profession by selling its birthright for a mess of homeopathic pottage. In this matter the Quaker City, like the proverbial tortoise, has thus completely distanced its fleeter rival, and the persevering daughters of William Penn have quietly secured the precedence over their more demonstrative Puritan sisters.

In an admirable sketch of the practice of medicine by women, which appeared in the *International Review* for October, 1879, Dr. James R. Chadwick, of Boston, argues that, although the struggle of women to free themselves from the social fetters that have so long proved an obstacle to their pursuit of knowledge has of late been centered on the profession of medicine, the reason is not to be sought in any peculiar fitness of women for the practice of medicine, but rather in the fact that the movement has found support in certain sentiments common to all civilized communities—the sentiments of delicacy, fastidiousness, and modesty—which, Dr. Chadwick states, have been gaining in strength from the days of Queen Charlotte and the mother of Queen Victoria, both attended by midwives, while the court-physician waited in an ante-room in case of anything serious; as there are those now who, in trivial ailments, resort to a certain class of practitioners because their medicines are easy to take, but fall back on the regular profession, heroically ready to swallow anything, when the case becomes urgent.

The first impulse toward the medical education of women in this country may have been excited by the sentiment of propriety, for it appears to have been a reaction against what Mr. Gregory contemptuously styled "*man-midwifery*" that led to the formation, in Boston, of the society to which I have referred, in order evidently that the female obstetrician demanded by delicacy might acquire the education demanded by science; but to the argument from propriety was soon added another, founded on the excess of the female population—that distressing surplus, the despair of the political economist and the mockery of the moralist who regards it as the duty of every woman to marry—a surplus that in New England at that time amounted to 20,000 women, many of whom, it was urged, might find in the practice of midwifery a useful, honorable, and remunerative occupation—no small matter where 20,000 surplus, and hence superfluous, women were involved.

Whether or not the woman-doctor microbe may be traced to this source, it was about this time that the affection broke out—the germ finding a congenial *nidus* in the minds of a few women whose ambitions were not to be appeased by the sop offered by the Female Medical Education Society, however saturated with soothing suggestions of honorable usefulness and pecuniary competency; and these women demanded the opportunity of becoming fully educated as physicians. Now, although the invasion of the medical profession by women had been opposed by the profession in Europe from a conviction (probably sincere) of the intellectual incapacity of women, the mass of the profession in America never urged this point (for what reasons I will not undertake to explain), but based their objection (also probably sincere) on the totally different contention of impropriety[1]—a fatal mistake—for as the community gradually awoke to the necessity of regarding the question of propriety from the point of view of the woman-patient rather than of the woman-doctor, the argument from propriety veered to the other side of the question, and those who had urged it against the study of medicine by women were quite unexpectedly "hoist by their own petard!"—the supposed antitoxin only served to increase the virulence of the infection.

I would that something of the history and motives of all the women concerned in precipitating this agitation upon an innocent and unsuspecting profession might be known to every graduate and student of medicine present; but, among the number, the names of Elizabeth and Emily Blackwell and our own Ann Preston, of blessed memory, whose works do follow her, stand pre-eminent—for in this opening professional vista their prophetic souls seized on a more alluring anticipation than the mere preservation of propriety, however desirable this may have been deemed—and on a more blessed benefaction than a merely remunerative occupation for a few women; they descried for women an avenue of escape from the physical deterioration and intellectual inanition that ever lie in wait for the unoccupied—an outlet into an invigorating atmosphere of activity in which the possibilities of realizing the potential plenitude of her being as a member of the human hierarchy would be multiplied almost by infinity.[2]

That the social environment plays a conspicuous part in all phases of social progress is a commonplace of social science, but that a certain degree of adaptability on the part of the individual is also essential is an equally controlling principle in evolution.

The single element of a public sense of propriety (upon which Dr. Chadwick would put the entire *onus* of this movement) could never alone have led to the establishment of women in the medical profession. In order that a professional field may be successfully occupied by women, it must offer the following conditions:

1. The work required must come within the scope of their abilities—physical and mental.

2. It must afford opportunity for the exercise of the qualities generally described as "peculiarly feminine."

3. It must make such demands on both the physical and mental energies of women as shall serve to develop these energies in a satisfactory degree.

4. It must afford such pecuniary compensation as shall enable those who pursue it to devote their best efforts to the work, which must therefore be acceptable to the community.

That the medical profession fulfils these conditions in a high degree is proved by the fact that there are more than three-thousand women in this country alone engaged in the practice of medicine to-day—many times

[1] See article by Dr. Mary Jacobi in Woman's Work in America. New York: Hoyt & Co., 1891.

[2] See address by Elizabeth and Emily Blackwell, "Medicine as a Profession for Women," 1859; also "Reply to Manifesto of the Philadelphia County Medical Society," by Ann Preston, Medical and Surgical Reporter, Philadelphia, May 4, 1867.

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as many as of those engaged in all the other professions put together.[1] But the conspicuous success of women in this as compared with other professions can only be attributed to a "peculiar fitness" for the work of the medical profession—to the lack, in other professions, of equal opportunities for the exercise of those qualities that have become specialized in women—the "peculiarly feminine" qualities—and Dr. Chadwick's reasoning evidently fails as an explanation of the woman-doctor.

Notwithstanding the existence in this country at the present time of from thirty-five to forty coeducational medical schools, the greater number of women now practising medicine here are graduates of schools exclusively for women, although the number of women's colleges of recognized position is only four. The coeducational schools include the medical departments of eleven universities—those of Michigan, Iowa, Minnesota, Colorado, California, Oregon, Buffalo, Syracuse, Boston, the District of Columbia, and the Johns Hopkins University of Baltimore.

The preference shown by women for schools attended exclusively by women might be variously interpreted as depending, perhaps, on geographic convenience, on favorable financial conditions, or (as the licence to practise as well as a medical education can be obtained only at a medical school) on less exacting educational requirements.

On the point of geographic convenience, I will cite the fact that of the nineteen women practising medicine in the State of Washington only one is a graduate of the Willamette University, in the neighboring State of Oregon. The geographic argument is thus disposed of.

The financial reason also fails as an explanation, as in the universities that receive State support the fees are notably less than in the colleges for women.

On the third point—that of educational requirements—investigation has disclosed several facts that bear on it:

1. That the required term of study in the colleges for women is longer than in most of the coeducational schools—our own college and the college of the New York Infirmary having been among the first in this country to lengthen the college-year and to increase the term of study to three and later to four years.

2. The results of competitive examinations for hospital-appointments, of examinations by State boards and for admission to State societies all show that women rank with the best when subjected to this test.

At the first examination held by the State Board of Maryland, in 1893, the highest percentage was made by the only woman presenting herself—a graduate of the Baltimore school for women; and in September last, at the State examination in New Jersey, a graduate of our own school took the highest rank. The records of competitive examinations for medical service in the Philadelphia and Polyclinic Hospitals in this city afford similar testimony. Thus the argument of less exacting educational requirements also breaks down as an explanation of the preference shown by women for their own exclusive schools.

[1] These figures were obtained from Polk's Medical Register of the United States for 1893. A recent census-report places the number at a little more than five-thousand.

The choice of a college is undoubtedly influenced by the clinical opportunities afforded in the localities concerned, and by the professional reputation of individual members of the various faculties. As to how much depends on the absence of male students—the degree of probability that inferior advantages and greater expense would be outweighed by this circumstance—must be left to the judgment of my hearers. A conclusive estimate of the influence of this factor could be reached only by a *consensus* of the views of those actually concerned—the students themselves; but in view of the general American confidence in the coeducational system (although it will be admitted that medical coeducation presents some exceptional features), taken in connection with the fact that most female students attend the clinics of the public hospitals where male students are also in evidence, notwithstanding that the clinic affords the supreme test as regards the difficulties of coeducation, the inference seems justifiable that the schools for women offer better advantages than can be obtained in the coeducational schools.

As the great medical schools of Philadelphia, New York, and Boston do not admit women, the only basis of comparison with these schools is that afforded by the statistics of results of competitive and other test examinations to which reference has been made and which bear especially upon these particular schools, as they are in the localities where such examinations are most in vogue; and these statistics undoubtedly warrant the conclusion that the best of the women's schools compare favorably with these leading schools for men. The medical department of the Johns Hopkins University (to which the admission of women was secured by a *tour de force* in the guise of a third of a million of dollars supplied mainly by one woman) is of too recent date to throw much light on the question under discussion. This college opposes more rigid requirements to the entrance of students, and offers a more advanced schedule of study than any other medical school in this country, and yet, of the first class (which matriculated in 1893) one-sixth were women—a far higher proportion than is shown in the total number of medical students for the whole country—thus confirming my contention that the attendance of women at any particular school is not determined by the presence or absence of the coeducational feature.

The claim here distinctly put forward, that the medical colleges for women stand among the most advanced of American medical schools, is not based entirely on the two points thus far mentioned, viz., the numbers in attendance as compared with the coeducational schools and the statistics of competitive and other test-examinations, but also on their requirements for admission, the character of their laboratory and other equipments, the courses of study pursued, the clinical advantages afforded, the term of study required, and the hospital and other appointments secured by their alumnæ. On the question of curriculum, I may state that the Woman's Medical College of Pennsylvania and the Medical Department of the Johns Hopkins University are the only colleges in the United States, so far as known, in which work in the physiologic laboratory is required of every student, the former having been the first in this country to make this requirement.

The chief disadvantages from which medical women

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in this country now suffer arise from their exclusion (during their professional career) from the work of the great public hospitals. Dr. Emily Blackwell, of New York, in an unpublished paper which has come into my hands, calls attention to the fact that these public institutions, equipped and endowed at public expense, are monopolized by men—although the hospital is no less important than the college in the training of doctors—that medical progress depends on the hospital and the laboratory, that the scientific writers and teachers, the great operators and other leaders in medicine are the hospital-men, and that the great journals are founded on hospital-records; and she adds that women, being limited to the few small hospitals that they have themselves established, are in the position of emigrants in a new territory, or, as might have been said, of the advance-guard of an invading army, compelled to build their own roads and create their own facilities as they advance.

This arraignment of the authorities who control the public hospitals is a most serious one; but in estimating the significance of the marked preponderance of distinguished men in the profession, as compared with distinguished women, the immensity of the mass of medical men, as compared with that of medical women, should not be overlooked. When the total number of great operators and other leaders in medicine is contrasted with the whole number of men in the profession, the ratio of greatness seems less distinguishing, "the gray pre-eminence of man" (which gave pause to the ambitious princess of Tennyson's imagination) becomes less overwhelming to the female medical consciousness. In spite of the disadvantages pointed out by Dr. Blackwell, the female profession boasts distinguished teachers in both the scientific and the practical branches of medicine, of which Dr. Blackwell herself is an example; brilliant operators in the surgical diseases of women, a field that presents some of the most difficult situations in surgery; skilful attendants in the maternal crisis that perhaps offers the supreme test of fertility of resource and presence of mind in the face of danger; and a shining record in the care of the insane, a specialty that demands a high degree of intrepidity and coolness, as well as of gentle and sympathetic firmness. The number of contributions by women to medical and scientific literature (judged by the ratio of writers to the whole number of the profession) is also creditable.[1] Without exaggeration, then, the medical profession may be said to show a goodly proportion of women who have "added the incident of learning to the accident of brains."

The medical work actually done by women may be regarded from two points of view: its value to the community (this depending on its quality as well as on its peculiar acceptability on account of their sex) and its value to themselves as a means of individual development, the latter being the broader, the more important view, a view in which the word "medicine" is quite overshadowed by the word "woman." Into the consideration of this aspect of the subject the scientific character of their work does not necessarily enter; nevertheless, the question as to what proportion of medical women may be classified as "regular," "homeopathic," "eclectic," etc., is one of great sociologic interest, like that of how the majority of women would vote in case of obtaining the suffrage, whether intelligently and on the side of law and order, or in the spirit of partisanship and with an eye (or both eyes) to the spoils.

In the city of Philadelphia (for many years, if not still, the *civitas Hippocratica* of America), of those engaged in the practice of systems not recognized by the mass of the profession as scientific medicine, systems the methods of which justify the opprobrious designation of quackery (which may be said to consist in using a remedy for the wrong reason or for no reason), the proportion is approximately the same for women as for men—about one-fifth. The statistics for the whole profession are not at hand, but of the entire number of legally qualified women engaged in the practice of medicine in the United States, made up of graduates of more than forty colleges, nearly one-fourth are graduates of the Woman's Medical College of Pennsylvania, and although I am compelled, most regretfully, to admit that this is not an absolute guaranty of the scientific character of their practice, I believe that the proportion of the alumnæ of our College who have proved true to its principles and teachings, and have thus been added to the ranks of scientific medicine, is much higher than the ratio for the city of Philadelphia.

The tide of modern medicine has set strongly in the direction of scientific methods, in which the balance and the retort, the microscope and the stethoscope, with the long list of their congeners, the thermometer, the pelvimeter and numerous other instruments of precision, the culture-tube with the measures for the exclusion and destruction of the ubiquitous microbe that have grown out of its use, and many other other sanitary measures—the results of modern study of the soil, the water, the air, and the climate—all play a conspicuous part. To this enumeration must be added the study of the lower animals and of man, by means of the multitude of modern instruments for investigation of the physiologic and psychologic problems that underlie the vast field of pathology. Any system of medicine in which the treatment of disease is based on principles and theories derived from other than scientific sources is self-condemned. So far as the medical profession is concerned, the *post hoc, ergo propter hoc* method of reasoning has had its day, and some better evidence than the recovery of the patient must be forthcoming in favor of a particular plan of treatment in order that it shall secure the serious attention of the profession; unless the relation of cause and effect between treatment and recovery can be established, we have not science, but empiricism.

In the relation which has so long existed between us of professor and student I have striven to infect your minds with the love of scientific truth; but now, as this relation is about to be severed, I desire to express to you my profound conviction of the great truth that "learning is but an adjunct to ourself;" that while she who heals the sick, who makes the blind to see, and the lame to walk does well, and "though twice a woman shall be called a leech," she who exhibits in her own character the value of a broadening and elevating pursuit in the development of the liberality of mind and self-poise essential to a true appreciation of life in all its depth and fulness does better; and while students of soci-

[1] See appendix to article by Dr. M. Putnam-Jacobi, loc. cit.

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ology are still perplexedly discussing the question of the desirability of an independent career for woman in the abstract, may you, individual women, each of far higher importance than any abstraction, fare bravely and womanly on to a future in which you shall have wrested from fate—the fate of the abstract woman—an assured position among the thousands of women already living enriched and ennobled lives as doctors of medicine, who are finding therein congenial occupation, intellectual growth, pecuniary independence, and a sphere of immense usefulness to their sex and hence to the entire circle of humanity that comes within the radius of their influence.

## CLINICAL MEMORANDA.

### *THREE CASES OF RECTAL NEURALGIA, ONE WITH DOUBLE MAMMILLITIS.*

BY W. F. ARNOLD, M.D.,
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CASE I was met in the person of a rather delicate man of middle age, whose illnesses have mostly been ascribable to the common infectious diseases of the respiratory system that have been resisted with anxious difficulty, although no noteworthy sequelæ remained from any of them. He suffered severely some years ago from Morton's (pressure) neuralgia in both feet; this subsided upon the adoption of a less exacting life, without treatment, its nature appearing to have escaped observation. He is the subject of pruritus ani of so moderate a character that applications of such simple remedies as citrine ointment and an ointment of calomel twice a week have served to obviate nearly all of its inconveniences. On account of this response to agents to which I am very loath to ascribe any other than a local (and most probably a parasitic) action, I think the neurotic origin of this irritation is open to serious question. At the time of the single attack of rectal neuralgia that I witnessed, the pruritus had been in unusual abeyance; and it continued so for several months thereafter. He had gained much in weight about this time, and he frequently congratulated himself upon the beneficial effects of a recent change of climate.

This attack came on without premonition during sleep, between one and two o'clock at night; and in this manner and time of inception it exactly corresponds with the other two cases to be described, as well as in the relief afforded by the passage either of feces or of flatus even in the smallest of quantities. I found the man upon the seat of the water-closet in a state of depression, nearly pulseless, of a death-like pallor, and sweating profusely. He evinced so much pain at that time that I gave him a medium dose of morphin subcutaneously, notwithstanding his statement that it had grown distinctly less in the few minutes that had been required to summon me by the officer of the deck, who had first assisted him in a half-fainting state to the water-closet.

No further attacks were observed in the course of our service together, which continued for a year; but no antineuralgic treatment was instituted. The man thought that the attacks were becoming less frequent.

CASE II occurred in a man about forty-five years old, of pronounced athletic tendencies. There is nothing more significant in his medical history than an obstinate attack of sciatica about five years ago. His seizures have not exceeded four in all, the first having taken place nearly two years ago. They seem, from the patient's account of them, to have been milder than the one to be detailed, but he is emphatic in declaring the pain to have been agonizing in character. All occurred between midnight and two o'clock A.M. The last one or two the man relieved by an extemporized suppository, as he had noticed that the presence of anything in the lower bowel abated the pain.

In Case III the patient had suffered only two very light paroxysms of rectal pain. It is probable that they would not have been considered as characterizing a special form of neuralgia had attention not been aroused by the preceding cases. The victim is a medical man, about thirty-two years old. His history includes gastric neuralgia(?) at the age of ten, severe *tic* from exposure to cold in Glacier Bay, Alaska, and a confirmed predisposition to Morton's neuralgia in the left foot, which is kept within limits, permitting comfortable bodily activity by attending to the shape of the soles of his shoes. His health is good, although he consciously prejudices it by his persistence in sedentary employments, to the almost complete exclusion of regular exercise. There is nothing to be noted about his seizures, which he described to me minutely upon my suggesting their nature, that has not already been referred to. We agreed in declining to treat such an irregular, and, in this case, so mild a disorder.

This gentleman has been subject since early boyhood to a peculiar form of irritation of the nipples and their areolæ, which, as nearly as he can recall, is set up only by exposure to a strong, cool wind. He is reasonably certain that it is not a result of the direct, local action of a high degree of cold, inasmuch as it is not manifested at times of severe exposure to simple cold; while the protection afforded these structures by the prevailing types of apparel is certainly opposed to this assumption. Besides, he has been driven by the inconveniences experienced to adopt local protective measures that have proved to his mind to have been of no prophylactic value. The last instance of it, which he observed with minuteness, was due to four hours' exposure to a strong, topsail breeze from the northward early in April. His upper garments on this occasion—a literal wild-goose chase—were a leather shooting-coat, lined with corduroy, an otter-skin vest of southern Chinese pattern (*id est*, nearly completely double-breasted), a light flannel shirt, and a very heavy flannel undershirt.

After twenty minutes' exposure to this wind from the right rear, soreness of both nipples appeared. The sensation is described as one of rawness, which causes the patient to shrink continually from the contact of his clothing, upon which contact, however, he is confident it is in no measure dependent. He says that it is more severe than simple contact of cloth with denuded cutis would be under ordinary circumstances; and he claims for it a peculiar quality that is as invariable as it is elusive of description. No very evident tumefaction results, but a deepened color seems a constant accompaniment. Careful search has not shown that the epithelium is eroded or that any exudation of any kind takes place. Hyperesthesia to touch and to the application of universal emollient agents, such as carbolized

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vaselin and glycerol, remains for from one to three days after each attack. The severity of the attack appears to be directly in proportion to the violence of, and the length of exposure to, the wind, and the duration is proportioned by the severity. Protection from the wind will arrest an attack at an early period after the inception of the initial symptoms. Naturally, inflammation here is only surmised.

Diligent inquiry has not developed a single case of this kind in either sex, save the one just related. It is perhaps desirable that I should add that there is not a suggestion of effeminacy about the subject of this, to me, unusual manifestation, which is a very real source of annoyance to its involuntary victim, who has the additional misfortune of being compelled to go to sea for a livelihood. He considers that he suffers more from cold than do the majority of the inhabitants of temperate climates. He has no theory of its mode of origin, and I have no speculations as to this that I care to express.

Regarding the rectal neuralgia, I have heard very little, and have seen even less in the commoner textbooks on the practice of medicine, although Gowers devotes a pointed paragraph to it in his *Diseases of the Nervous System*. If what I observed in Case I were frequently repeated, it might easily serve as the cause of sudden death from shock or from syncope. It may be well to state that none of these patients shows any obvious signs of gout.

U. S. S. PETREL, FOURTH-RATE, ASIATIC STATION.

## SPONTANEOUS EXTRUSION OF A PIECE OF IRON THROUGH THE CORNEA.[1]

BY HOWARD F. HANSELL, M.D.,
OF PHILADELPHIA;
CLINICAL PROFESSOR OF OPHTHALMOLOGY, JEFFERSON MEDICAL COLLEGE;
ADJUNCT PROFESSOR OF DISEASES OF THE EYE, PHILADELPHIA POLYCLINIC.

THIS case presents unique and distinctive interest on account of its exceptional rarity—such a termination of a similar accident, which is recognized as a serious one, is unknown to me in my experience or in literature; and, because of its suggestion of a possible prognosis in cases of wounds of the eyeball, and of foreign bodies and their retention in its interior, that has probably heretofore not been considered. When a foreign body, such as a fragment of metal, enters the eyeball, inflammation is excited by the direct violence of the traumatism, and later by the presence of the foreign body in the highly organized tunics; and, secondly, by the introduction of germs and by the chemic changes that the substance undergoes through oxidation by the intra-ocular fluids.

As soon as practicable after the injury the magnet and other means of extraction should be employed, in order to prevent destruction and atrophy of the globe and to save the patient from the disastrous effects of sympathetic inflammation. The traumatic inflammation may cause the formation of a capsule around the foreign body, in which it may lie innocuous for many years. This fortunate outcome, however, cannot be seriously considered, and, while it exceptionally solves the problem, it does not alter the safe rule that a foreign substance in the eye should be extracted with the least possible delay and injury to the sight and to the globe.

[1] Read before the Philadelphia County Medical Society, May 15, 1895.

A. W., aged thirty years, presented himself at the outpatient eye department of the Jefferson Hospital in March, 1895, complaining of pain due to the presence of a piece of iron in the left eye. I found projecting from the most inferior part of the cornea, just above the scleral margin, a dull, black, pointed object. Palpation with a spud showed that it was metallic, as a sharp click could be easily heard and a grating sensation was felt as the point of the instrument passed over it. The pericorneal vessels were markedly injected; the cornea in the immediate neighborhood was opaque; the anterior chamber was of normal depth; the pupil was mobile and cone-shaped, the point of the cone below; the iris was attached in one or two places to the anterior capsule and to the cornea at the site of the black point; the capsule was slightly opaque, with a few streaks of opacity running backward through the lens. The patient stated that fifteen years before, while breaking rocks with a pick-axe, a minute fragment of the point of the axe flew into the left eye. Severe inflammation and partial loss of vision followed. The signs of inflammation disappeared in the course of a few weeks, to recur with greater or less severity every few months. The man assured me that this was the only traumatism that had ever happened to that eye, and that he, his medical advisers, and his friends had known that the eye contained a foreign body from the time of the accident. He had hitherto declined all suggestions to have it removed. $V = 20/50$. Accommodation and the visual field were apparently undisturbed, though these points could not be accurately determined. The man was admitted into the hospital, and, after some fruitless attempts at removal, the foreign body was extracted by dissecting it out from the cornea. A four-volt battery, strong enough to extract the iron and to distort the cornea, was of no service in dislodging the body because its rough surfaces and edges were firmly held by corneal and inflammatory tissue. The patient recovered in a day or two, with vision unchanged. The piece of iron I have the pleasure of showing you weighs a little less than two grains.

## ACQUIRED PHIMOSIS, DUE TO UNSUSPECTED VENEREAL WARTS, SIMULATING GUMMA OF THE PENIS.

BY A. BRADLEY GAITHER, A.M., M.D.,
OF BALTIMORE, MD.;
ASSISTANT IN GENITO-URINARY SURGERY, JOHNS HOPKINS HOSPITAL DISPENSARY.

WHEN a case of acquired phimosis is met with, it is often impossible to tell from the clinical history just what condition will be found after circumcision has been performed. Some cases, due to hard chancre, with an induration involving the whole prepuce, and having a thick discharge from the preputial cavity, show no marked points of ulceration after operation. Again, cases with moderate preputial discharge and swelling may show extensive ulceration and excavation on splitting back the prepuce.

Acquired phimosis, due to venereal warts, is rare, and almost invariably the patient will have noticed the growths, with their gradual increase in size and number, thus giving an immediate clue to the cause of the trouble. The following case may be of interest on account of the negative history as to venereal warts, and

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the clinical presence of gumma, or epithelioma, of the penis.

John D., aged thirty years, an unmarried Irishman, presented himself at the Genito-urinary Department of the Johns Hopkins Hospital Dispensary on May 6, 1895, with the following history: He denied ever having had venereal disease and had never observed a sore or growth on his penis. From childhood the prepuce had been tight, but it could always be retracted without difficulty. The man had had sexual intercourse for the last time on December 21, 1894. On January 6, 1895, he first noticed a discharge from the preputial cavity. At this time the prepuce was slightly swollen and painful, so that he did not retract it. In March he went to a hospital and was given medicine to take internally, and later an injection with which to wash out the preputial cavity. After two months' treatment, during which time his condition became progressively worse, he came to the Johns Hopkins Hospital. One year before he had had sores on the scalp and some small pimples over the body, with slight alopecia. There had been no sore-throat, headache, or pain in the limbs. The glands in both groins were indolently enlarged.

On examination, a condition of acquired phimosis was found to be present. The penis, from one cm. behind the corona to the meatus, was swollen to three times its normal size; the prepuce could not be retracted at all, and was very tense. There was a free discharge from the preputial orifice. On the dorsum of the prepuce in the median line, just over the corona, there was an excavated ulcer of the size of a small bean, with a free purulent discharge and a bad odor. The cutaneous portion of the prepuce was bright-red in color, with a sharp line of demarcation one cm. behind the corona, from which point the appearance was normal. The sensation to the touch was that of a hard, uneven mass, as if the glans penis and prepuce were adherent; yet in places there was the elastic pulpy feeling of a gumma. The edema and tension of the prepuce prevented a satisfactory examination. On irrigating the preputial cavity the fluid came slowly through the opening on the dorsum of the penis, apparently taking a roundabout course.

From the clinical appearance I was in doubt as to whether the case was one of gumma or epithelioma of the penis. On the following day, under ether-anesthesia, the prepuce was slit back in the median line, through the sinus, and the condition found to be due to venereal warts. These were countless in number, and grew from every portion of the glans penis and mucous surface of the prepuce. They varied in size from a pin-head to a cherry. Under the favorable conditions present their growth had been so luxuriant as to put the prepuce under such tension that necrosis had set in. The warts were cut off as close as possible and cauterized with nitric acid. The prepuce was then rounded off and an iodoform-dressing applied. On the subsidence of the edema it was found that a few warts had been missed. These were treated with the continued local application of fluid extract of euphorbia pilulifera, which gives very satisfactory results in this condition.

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***Dr. Benjamin S. Mackie, U.S.N.***, died at Philadelphia on July 25th, at the age of fifty years.

# TOXICOLOGIC NOTE.

## *A CASE OF OPIUM-POISONING TREATED WITH POTASSIUM PERMANGANATE.*

SERVICE OF GEORGE BYRD HARRISON, M.D., EMERGENCY HOSPITAL, WASHINGTON, D. C.

[Reported by JAMES R. CHURCH, A.M., M.D., of Washington, D. C.]

THE following case was the last of a series of fourteen which came under my observation while an interne at the Emergency Hospital, and, I think, presents features to make it of interest to the profession. It is the only case in which a recovery was entirely attributable to the permanganate-treatment, and was to me a most satisfactory test of the efficacy of this antidote.

M. S., a mulatto girl, nineteen years of age, was brought into the hospital at 11.30 P. M., with the history of having taken twenty-cents' worth of laudanum (probably 25 or 30 c.cm.) about two hours previously. She had several epileptiform seizures while in the ambulance and one after admission to the hospital, but was easily roused from her stupor by pressure on the supraorbital nerves. She could not, or would not, talk, but was not in a condition of absolute coma. The pupils were pin-head in size, respiration was slightly accelerated, and the temperature was normal.

The girl was treated with the usual line of opium-antidotes and antagonists, and, as coma was absent, she was given apomorphin hydrochlorate 0.005 hypodermically, which had been preceded by 300 c.cm. of a solution of potassium permanganate (0.30 to 500 c.cm. of water). Two more injections of the apomorphin were given at intervals of about seven minutes, but none of them was effective. To be certain that the lack of action was not due to the defective qualities of the drug the second and third doses were each taken from a freshly opened bottle of tablets. Shortly after the last dose the girl's condition became rapidly worse. She lapsed into coma and the pulse went up to 134 and the respiration to 26, and became stertorous. The faradic current now had little effect, and I decided to rely entirely on the permanganate, as other treatment was unsatisfactory.

The stomach-tube was passed, and, after the removal of the gastric contents and lavage with hot coffee, 500 c.cm. of the permanganate-solution were thrown into the stomach and allowed to remain about five minutes, being then withdrawn and replaced by a fresh solution. This was repeated until 2500 c.cm. of the solution had been used, when 250 c.cm., containing 0.30 of the salt, were introduced and allowed to remain. After the second washing out the girl's condition began to improve, and after the last she was aroused by the battery with comparative ease. Her pulse dropped to 104 and respiration became less frequent and fuller, and within three-quarters of an hour from the ingestion of the last 250 c.cm. of solution she was sent to the ward to bed, being then perfectly conscious and easily roused. She made an uninterrupted recovery and was discharged the next day, complaining only of slight pharyngeal irritation and general lameness, the latter due to efforts to rouse her.

The points of interest in the case are, I think, the

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convulsions, which I do not understand; the bad effect of the apomorphin, which had about the influence of an equivalent of morphin, and, lastly, the entirely prompt and satisfactory rally after the permanganate was resorted to, at a time when the condition was extremely critical.

I think my treatment open to criticism in deferring the use of the stomach-pump and in not immediately using the permanganate in larger dose than the first 300 c.cm. I can unhesitatingly assert that the patient's recovery was due to the permanganate-treatment, and should not hesitate to use it in other cases in preference to other drugs.

1706 OREGON AVENUE.

## MEDICAL PROGRESS.

***Cerebral Softening with Hysterical Symptoms during Pregnancy.***—BARBOUR (*Edinburgh Medical Journal*, June, 1895, p. 1092) has reported the case of a primipara, twenty years old, who in the fifth month of pregnancy became melancholic, and suddenly in the seventh month staggered, lost vision, and also power in the left leg, recovering, however, in a few minutes. Two weeks later a similar attack occurred, beginning with emotional disturbance, tremors, and faintness, leaving loss of power in the left arm and aphonia. On the following day six of these fits occurred, but always between them there was recovery of speech and of muscular power. The woman presented aphasia and partial aphonia, with some loss of power in the left hand. The knee-jerks were much increased, especially the left, as were also the plantar and abdominal reflexes. A month later another attack occurred, and was attended with involuntary evacuations of urine and feces, and with difficulty in swallowing from paralysis of the soft palate. There were also ptosis of the right eyelid, contracture of the right biceps, firm flexure at the right elbow, and beginning rigidity of both lower limbs. Later partial analgesia and anesthesia of both lower limbs appeared, the degree and area varying constantly. There were also marked fugitive flushings, sweating, and pallor, but no wasting. The temperature and pulse were normal. The case was treated as one of hysteria, which it was thought might be relieved by inducing labor, but uterine contractions came on spontaneously. Each pain was attended with minor epileptiform spasms, and the fetus died during the progress of labor, forceps being required for its extraction. For thirty-six hours afterward it appeared as if the woman would recover, but pulse and temperature rose, the reflexes became abolished, and the heart failed.

Upon post-mortem examination an area of softening was found on the right side of the brain, involving part of the head of the caudate nucleus and the anterior limb of the internal capsule. Many branches of the right middle cerebral artery were found to be thrombosed. An area of softening was also found in the middle of the pons, where the basilar artery was thrombosed. The kidneys contained commencing cortical miliary abscesses. The fetus presented contractions of all the limbs almost identical with those exhibited by the mother.

***Coma from the Application of Carbolic-acid Compresses to the Skin.***—LUCAS and LANE (*Lancet*, No. 3744, p. 1362) have reported two cases in which symptoms of intoxication resulted from the application to the skin of compresses saturated with a solution of carbolic acid. The first occurred in a boy of fifteen years, who presented several sinuses upon the right thigh as a sequel of suppuration in the course of an attack of typhoid fever. At noon a carbolic compress was applied over the seat of operation. In the evening the lad appeared sick, and at 2.30 A. M. on the following morning he was found insensible and breathing stertorously. The pulse could not be counted at the wrist, but the heart-beat was 200 per minute. The pupils were moderately small, but reacted slightly to light. The corneal reflex was absent. There was general muscular resolution, but sharp stimuli excited slight movements. Perspiration was profuse. After energetic treatment with brandy, strychnin, and hot-water bottles consciousness returned in the course of eight hours. The urine first passed was dark in color. For several days the patient felt sick and vomited from time to time. A week after the accident, when arrangements were again made to operate, a 5 per cent. solution of carbolic acid was applied on lint to the affected part for a short time. Soon the boy was noticed to be sick and suffering and the skin was bathed in perspiration. The temperature fell below normal and the pulse became scarcely perceptible. For two days afterward the urine was dark in color.

The second case occurred in a boy, six-and-a-half years old, who presented a swelling in the right iliac fossa, which it was proposed to explore. To the skin, over and in the vicinity of the mass, there was applied at 12.20 a compress moistened with carbolic lotion, one to twenty. At 1.30 the child was heard groaning and was found to be pale, collapsed, and comatose, with marked dyspnea, convulsive twitching of the eyelids and limbs. The condition improved upon injection of ether and atropin hypodermically, and brandy by the rectum and the application of blankets and hot-water bottles. The patient thereafter rapidly improved and was quite well after the lapse of several days. In this case repeated vomiting also occurred, and the urine presented a dark-green color, yielding the ordinary reactions for carbolic acid and its products in the urine.

***The Bacteriology of Acute Articular Rheumatism.***—SINGER (*Wiener klinische Wochenschrift*, 1895, No. 25, p. 449) has studied the urine in seventeen cases of acute articular rheumatism, with the result of finding the staphylococcus pyogenes albus in ten (and twice in the blood); the staphylococcus pyogenes aureus in one; the streptococcus pyogenes in three; and the staphylococcus pyogenes albus and the streptococcus pyogenes together in two. In one case, complicated with cystitis, an abundance of bacteria coli were found. Seven of these cases occurred in men; ten in women. Nine were severe; two moderately severe; and six mild. None presented cardiac complications.

CHVOSTEK (*Wiener klinische Wochenschrift*, 1895, No. 26, p. 469) has examined the urine in twelve cases of articular rheumatism, with negative results in nine; in the remainder the diplococcus ureæ was found in one, the staphylococcus pyogenes albus in the second, and large

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plump cocci in the third. The urine in these cases was obtained with a catheter, and it is pointed out that staphylococci and streptococci have been found in the urethræ of healthy individuals. It was further insisted upon that the mere presence of micro-organisms in the urine is not necessarily indicative of any relation on their part to disease. Further examination of the blood and urine and the contents of the inflamed joints in various conditions yielded negative results in cases of rheumatism, although organisms were found in cases of sepsis and gonorrhea complicated by joint-involvement. The opinion is finally expressed that the articular lesions of acute rheumatism are not attributable to direct bacterial invasion, but to the action of toxic substances present in the blood, due directly or indirectly to the activity of bacteria.

*Skin-grafting from the Lower Animals.*—At a recent meeting of the Edinburgh Medico-Chirurgical Society, Mr. MILES (*British Medical Journal*, No. 1795, p. 1149) presented a communication upon skin-grafting from the lower animals. The animals used were dogs, rabbits, kittens, and frogs. Dogs were preferred, and frogs were found the least satisfactory. In all instances but one, young animals were employed. The surface of the ulcer to be treated must be aseptic, and the patient in good health. In the majority of cases granulations were planted on. The animal was killed, or pithed, stretched out, and nailed down. The flanks and abdomen were shaved and washed with an antiseptic solution. Small pieces were cut out, the largest being six inches by one inch, but mostly much smaller. The subcutaneous tissue was always taken with the skin. The grafts were pressed on the tissue close to one another, then dressed with ordinary protective and iodoform-gauze. The first dressing should be seventy-two hours afterward, and this should be done very gently; after that, every twenty-four hours, or at most forty-eight hours. Among the difficulties encountered was sloughing of a graft, usually due to too early dressing, though sometimes to hemorrhage under the graft. Apparent sloughing of the graft was sometimes seen, though, after all, the skin grew quite well. The formation of pustules was sometimes observed; sometimes granulations grew through the graft and destroyed it. Copper sulphate had been tried to prevent this, but without success, and a sharp spoon was used instead. Ulcers upon the abdomen and thorax responded less satisfactorily than ulcers situated elsewhere, on account of movement. For this reason a loose dressing is indicated.

*Treatment of Prostatic Hypertrophy by Ligature and Division of the Vas Deferens.*—ISNARDI (*Centralblatt für Chirurgie*, 1895, No. 28, p. 657) has reported the case of a man, seventy-two years old, who for a year had suffered with symptoms of prostatic hypertrophy, which had failed to yield to the usual therapeutic measures. Relief was afforded by ligature and division of the vas deferens. Six-and-a-half weeks after the operation retention of urine and incontinence had disappeared, and the bladder was tolerant of urine for seven hours during the night. The urine, which had previously been purulent and at times hemorrhagic, had become clear and otherwise normal. The prostate itself, which, prior to the operation was of the size of a half-nut, became scarcely appreciable upon rectal examination. The vas deferens from the point of division pursued an irregular course and was thickened and nodular in places. The epididymis was smaller than normal, particularly at its distal extremity and in its body. The testicle itself was reduced about one-half in size.

*The Toxicity of the Urine in Variola.*—AUCHÉ and JONCHÈRES (*Revue de Médecine*, 1895, No. 6, p. 480), as a result of the study of the urine in a series of cases of variola, found that in the discrete variety the absolute quantity of urine is variable in different cases, while the urinary curve is more nearly comparable, being relatively high in the eruptive stage, declining in the suppurative period, and again rising during defervescence. In several cases an apparent critical secretion of urine was observed. The toxicity of the urine remained about normal during the eruptive stage. It declined, and sometimes in notable degree, during the period of suppuration, the fever increasing notably with the onset of defervescence, and again becoming normal at the end of from one to three days. Often there was at this time a veritable urotoxic discharge corresponding with the urinary crisis. In cases complicated by febrile disorders during convalescence the toxicity declined, but increased with the subsequent fall of temperature. The delirium of the acute period of the disease is believed to be of toxic origin, and in one case the oscillations in the urinary toxicity were found to correspond with the mental manifestations. In hemorrhagic variola the urinary curve and toxicity were low, almost up to the occurrence of death.

*The Relation of Endometritis to the Reproductive Process.*—At the meeting of the German Gynecological Society, recently held at Vienna, DÖDERLEIN (*Centralblatt für Gynäkologie*, 1895, No. 26, p. 701) attributed pathologic importance to the presence in the uterine cavity of the puerpera of micro-organisms of any kind. The designations catarrhal, purulent, diphtheric, and gangrenous puerperal endometritis may well be replaced by the etiologic qualifications pyogenic and sapremic. Pyogenic endometritis is the most frequent affection of puerperal women. The profound constitutional infections occurring during the lying-in are, as a rule, attributable to this condition. The cause is most often the streptococcus pyogenes, but it may be due besides to the staphylococcus, the gonococcus, and the bacterium coli. The micro-organisms of sapremic endometritis are as yet unknown.

*Influence of Ether and Chloroform upon the Kidneys.*—As the result of an extended study conducted in the surgical department of the new General Hospital at Hamburg, EISENDRATH, of Chicago (*Deutsche Zeitschrift für Chirurgie*, B. xl, H. 5 and 6, p. 466), arrives at the conclusion that previously existing albuminuria is more frequently increased by ether than by chloroform; and that albuminuria is more frequent after chloroform-anesthesia than after ether-anesthesia, and in the proportion of 32 to 25. The influence of both anesthetics upon the amyloid kidney is alike. Cylindruria, with and without albuminuria, is equally frequent with chloroform-anesthesia and ether-anesthesia, but disappears more rapidly after the latter than after the former.

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SATURDAY, AUGUST 3, 1895.


## *CONCERNING "DYSPEPSIA."*

FROM the amount of pepsin on the market we would certainly be led to believe that so-called dyspepsia is a well-defined disease. There is a sort of poetic justice about the fact that the American hog, whose lard and pork are commonly held guilty of what is often spoken of as our national malady, should now furnish the popular remedy therefor. We might almost transpose "a hair of the dog that bit you" into "a stomach of the pig that upset you," for according to the popular view at least, "dyspepsia" is looked upon as a disease of the stomach. The public knows perfectly what "dyspepsy" is and just what to take for it. Pepsin, in some form, is poured into our feeding-bottles at the dawn of our existence; it is kept upon our pantry-shelves like sugar or soda; it surges and bubbles in our soda-water; it lurks in our chewing-gum. We smuggle peptones into the economy with the bouillon that opens the banquet and in the jellies that crown its close. It looks as if the stomach would soon become a supernumerary organ, like the third molar—and the mammary gland of modern woman. Whence has arisen this deep-rooted idea? From the medical profession, of course. In fact, medical men are almost as fatuous as the community in regard to pepsin, prescribing it in every emergency as they used to prescribe calomel fifty years ago. And yet the dyspeptic is abroad in the land as never before.

We are all proud, and justly so, of the rapid strides that have been made in the pathology of disease in the last thirty years. Probably no one principle has done more to clear our diagnosis, systematize our pathology, and advance our therapeutics than that of rigidly sifting and resifting the evidence until the one organ has been found that is chiefly responsible for any given disturbance. But have we not carried the process too far in some cases? We do not refer simply to such wild-goose applications of it, as, for instance, graduated tenotomy for epilepsy, cauterization of the turbinates for asthma, or repair of the cervix for neurasthenia, but to more rational and generally accepted results of the method. For instance, it was a great advance and triumph when Bright discovered that the complexus of symptoms that bears his name was caused by disturbances of the filtration-processes in the kidneys. But does any thoughtful physician to-day regard so-called Bright's disease as primarily and essentially a disease of the kidneys? Are these organs not simply vicarious sufferers for the shortcomings of either the liver-cells or the muscle-cells, resulting in a poisoning of the arterioles in the body generally? The glomeruli simply suffer as part of the vascular system. Are we not also beginning to suspect something of the same sort in regard to pulmonary tuberculosis? We know all about tubercle anatomically, and the bacillus has become one of our household gods, a word to conjure with, an explanation for everything; but why is it that this organism has in nine cases out of ten to attack the lungs before it can pull down his prey? It effects an entrance into every part of the system, but in the lungs alone can it usually produce a fatal result. It would appear as if pulmonary tuberculosis were not so much a disease of the lungs as that the latter were a point of least resistance for the whole system.

Something of the same sort appears to be true of the disturbance of digestion called dyspepsia. We use the term "dyspepsia" simply as one of convenience, as describing not a disease, of course, but a well-known group of symptoms, usually referred to the condition of the gastric mucous membrane and contents. There can be little question that the stomach has been held responsible for far more than it deserves. In the first place, many of our

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worst dyspepsias are really, to coin a term for the moment, "dystrypsias," and dependent upon enteric and pancreatic disturbances; others again are of hepatic and even cholecystic origin; while most cases of "gastralgia" are really anginal and of cardiac origin. But apart from all such confusions, is the stomach or its contents essentially and solely responsible in the large class of dyspepsias that are of "gastric" origin? Our enthusiastic bacteriologic friends say yes at once; the contents alone are to blame. Tell them what germ has been ingested with the food and they will be able to state in advance what form of indigestion will result. They are now seriously proposing a classification of gastric troubles, lactic, butyric, gaseous, and yeasty dyspepsias, according to the germs that give rise to these various fermentations. *Gastritis oidica albicans*, *gastritis torulosa*, sound well, but we think there are valid objections against regarding the gastric mucosa as simply a culture-plate for germs at the sweet will of the latter. On the other hand, the medical man is also inclined to blame the contents of the stomach, as his first question usually is, What have you been eating lately? and if pork, or pie, or cake is mentioned, he exclaims triumphantly, "That's what did it," and prescribes pepsin, followed by a saline; forgetting that there are hundreds of men, women, and children in the rural parts of that very community who habitually have soda-biscuits and doughnuts for breakfast, fried pork and mince-pie for dinner, or baked beans and "oak-bark" tea for supper, and never find out that they have a stomach.

We are supposed to be a nation of dyspeptics. This peculiarity is variously attributed to the use of the frying-pan, mince-pie, too rich foods, hurried meals, tobacco, and insufficient mastication. Abernethy held these views as to mastication, for his crusty advice to the rich American who consulted him for indigestion was simply to expend upon his food the jaw-power that he wasted upon his quid and the saliva that he squandered upon his carpets.

Part of our troubles are no doubt due to the thoughtless way in which we revel in the cheapest, most varied, and abundant food-supply the world has ever seen. More may be traced to our senseless neglect of the comforts and decencies of the table—and as of almost anything else—in our mad rush after the nimble dollar.

But these causes alone are by no means adequate, for we must remember that if our American dietary is prodigally rich and varied, it is also the most abundant, the most nutritious, and, broadly considered, the most easily digestible in the world. We know nothing of the insufficiency, the coarseness, the deadly monotony of European peasant and even middle-class diets; while as for indigestibility and "unhealthiness," what have we to compare with sauer-kraut, boiled dough, cabbage-soup, black bread, unleavened "leather" cakes, and raw sausage? Our "twenty-minutes-for-dinner" style of eating is no doubt injurious, but even in this connection our cookery has been adapted to our habits and everything boned, minced, hashed, and cooked to a pulp, so that our teeth are actually decaying from lack of exercise. It is the rush back to work *after* the dinner that does the mischief, and not the mere mechanical obstacle of imperfectly masticated food.

But the most fatal objection to this theory lies in the fact that the mass of our dyspeptics are "dieters" to a man—or woman. They talk "health-foods" from dawn to dark; they abstain from biscuit, from fried cakes, from the pleasant pie and the juicy cabbage; they shudder at the mention of pork, "anything that has lard in it" is as an unclean thing to them. They mortify the flesh on Graham gems and similar atrocities, on oat-meal and germ-foods, on quarts of hot water and slops of every description—and still they suffer. The more carefully the diet is "regulated" the worse, as a rule, is the "dyspepsia."

When any man attempts to substitute his own puny "reason" for the instructive wisdom of a thousand generations he usually makes a mess of it. Digestives give only temporary relief. The trouble is not with the food, nor yet with the stomach, but with the whole individual. Take one of these valetudinarians out into the open, put an oar or a fishing-rod into his hand, or a twelve-bore across his shoulder, and let him thrash the streams or tramp the uplands from dawn to sunset, and what of his dyspepsia? Within forty-eight hours he will be devouring the swimming salt pork, the substantial sausage, and the alkali biscuit of his farm-house fare with relish and impunity. His muscles loudly demand such pabulum, and their servant, the stomach, takes care of it, as ordered, without remonstrance. In short, in most cases of dyspepsia the stomach is the point of greatest stress and strain in a generally enfeebled and devitalized organism, and consequently the place where the

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breakdown occurs. Let the business "hustler" and the model housekeeper relax the strain and tension and their dyspepsia will improve *pari passu*.

Discomfort here, as elsewhere, is a danger-signal that should be heeded and brakes whistled down at once, instead of being muffled by pepsin. Even regulating the diet is at best a mere palliative and a serious mistake ultimately. The pressure on the stomach is lightened thereby, but the strain on the whole system continues unchecked. More than this, "regulation" usually involves the substitution of less nutritious and substantial foods than before, and the *circulus vitiosus* is actually strengthened thereby. The stomach refuses to digest fats and proteids because its blood-supply is of poor quality; it is humored with sugars, starches, milk, etc., and thus the blood is cut off from the very supplies out of which it might have repaired its deficiencies and sinks more deeply in the mire of degeneration.

Pepsin and dieting in such cases are but little more rational than the use of opium. We ought to go to the root of the matter and never rest satisfied until our dyspeptic patient's stomach is in such condition that it will digest *anything* in reason that he puts into it. We should insist upon whatever possible changes in his hours, responsibilities, habits, and recreations may be necessary to attain this standard. A dyspepsia cured by dieting is a dyspepsia uncured. To relieve gastric distress in such cases by reducing and watering the diet is like easing a crushing machine by increasing the distance between its rollers; it continues in operation with less motive power, but what sort of work does it do? A man may continue to exist on Graham bread, milk-toast, beef-tea and gruel, but he does not really *live*, still less grow and repair waste.

Instead of encouraging our patients to avoid everything that "disagrees" with them, we should urge them to a persistent effort to make everything agree with them. Let us insist that they make themselves not merely "stomach-hungry," but "muscle-hungry" every day, and all other things shall be added. Our standards of "dyspepsia" have been altogether too low in the past. Any sort of a diet that could be devised that a man could shuffle along upon, extracting a living out of it, without actual discomfort, has been considered sufficient. An able-bodied stomach, even less than this, a really "practical" digestion, must be capable of assimilating not only all digestible things, but a great many so-called indigestible ones as well. A cruiser that is to steam ten knots an hour as a routine pace must have a possible speed of at least fifteen knots under pressure. It would not be a bad idea to fix upon a "standard food" that our dyspeptic stomachs should be required to digest before being allowed to consider themselves cured—pork, for instance, for, leaving idiosyncrasy out of the question, any one who cannot digest this in the form of breakfast bacon or ham ought to be regarded as dyspeptic *in posse*, if not *in esse*, or, to borrow a term from circulatory pathology, as suffering from "gastric inadequacy." As a matter of fact, almost every Gentile whose dietary does not include pork in some form is either dyspeptic or will soon become so. Dyspepsia is emphatically a disease of under-feeding, instead of over-feeding. In practice one will see more cases cured by pork than by pepsin.

Dyspepsia should be treated as a symptom sometimes—as we are at last learning—as a reflex neurosis, and essentially as a systemic instead of a gastric disease, and it will cease to be one of the *opprobria medicinæ*.

## EDITORIAL COMMENTS.

"*Publishing the Formula*" is a delightful recreation of the *fin de siècle* nostrum-vendor. One wonders which most to admire, the enormous impertinence of the "publisher" or the gullibility of the public. Perhaps it may turn out that the egregious ascription of stupidity to the asinarian public, professional or lay, is the only thing to wonder at. For how can men think to hoodwink even the stupidest people nowadays by such a gambler's game of now-you-see-it-and-now-you-don't? *Can* people be bamboozled by such nonsense, and *can* the bunco-men be guilty of such attempts as the jingling together of a lot of chemic names and calling that a formula? Verily, men are driven to desperate straits when they do such things. The latest instance is contained in a pamphlet now before us, entitled (of course) "a new consumption-cure." The author thus delivers himself:

I may add that there is a further reason for reluctance in setting forth the claims herein presented. It is the inevitable violation of "the sanctities" of Medical Ethics—the excitement of prejudice on the part of many physicians—incident to advocating a so-called "Secret Remedy." For this, however, I can only express a sincere regret, without in the least apologizing for my position.

I am not an M.D., and so not amenable to any professional Code of Ethics. The broader ethics of civilized humanity accord to every man proprietary rights in the discoveries as well as the creations of his own genius. The just sentiment of mankind in general as well as my own conscience will sustain me in retaining that right, at least for a time, through the only possible means—keeping my formulas and modes of manufacture to myself. I am, moreover, happy in the assurance

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that there are men, even in the ranks of regular medicine, broad-minded and generous-hearted enough to accord me that right without cavil. They will examine the evidence, and, upon proof, will acknowledge gladly the improvement made upon any methods known to them of combatting the worst disease with which they have to contend. Enough such men there are to afford me all the "moral support" needed in facing the opposition of their more numerous, but less noble brethren. I may be pardoned, too, for saying that the renunciation of "secret and proprietary remedies" on the part of the medical profession is, I am informed, to a very large extent a virtue held more in theory than in practice. To a still larger extent it is a rule of faith, ignored as wholly obsolete.

"Nine-tenths of the profession"—I quote from one of its own members who has ample knowledge of the facts—"nine-tenths of Medical Practitioners are daily using and prescribing drugs and compounds whose exact composition and mode of manufacture they do not know. These are practically 'secrets' belonging to the pharmaceutists, who put forth these remedies with the most voluminous and attractive forms of advertisement possible."

Thus the benevolent discoverer squares his conscience in accordance with that of the "broad-minded and generous-hearted" secret-nostrum men, and against the "more numerous, but less noble brethren" who have no therapeutic secrets. (It is an interesting psychologic study to see how the lower one sinks in the slime of selfishness and quackery and deceit, the more he prates of broad-mindedness and brotherly love, and swashes about in the slush of maudlin sentimentalism.)

But a later pamphlet shows that our new-consumptive-cure man was not quite satisfied with his broad-mindedness, etc., for here he makes a great hullabaloo in the *Rocky Mountain News* about publishing the secret. At last "THE FORMULA IS HERE," and it reads thus:

Up to this time we have not revealed the constituents of the gas, but feel that it is now time to do so, and learn whether or not, since it is open to the profession to know the truth without violation of ethics, they will take heed of it. I will take this step because a number of physicians who have witnessed the results of my work think it may be the opening of a new era to medicine. So, without attempting to detail all the steps of my discovery, I name those elements which constitute the essential active principle in the Electro-Inhalent Consumption Cure.

Formula—Calc. chloride, Potas. bromide, Potas. chlorate, sodium chlor., alum, c. p. oxygen.

These elements, treated with static electricity, give rise to an antiseptic gas of the most peculiar form. It is unlike anything else hitherto known, both in nature and effect, etc.

We would not have occupied so much space with this trash if the method of exploitation did not seem to run the danger of becoming fashionable, even in some so-called medical circles.

***Intrauterine Conveyance of Typhoid Fever.*** — While clinical evidence has not been wanting of the transference of disease from the pregnant mother to the fetus *in utero*, the subject has been much enlightened with the progress of bacteriologic science. Although one cannot in strict construction speak of tuberculosis being inherited, a number of observations have shown that the offspring of tuberculous mothers may be born tuberculous. We have in this instance, however, much the same kind of transmission of the disease as may occur at any time from one infected person to another, albeit in the nature of things more direct—but this is not heredity. The conveyance takes place through the intermediation of the placental blood, and in the same way as the infection of the mother took place, and is not developmental. The same processes are active in the infectious diseases as a group, but the demonstration has not yet been generally made. In this connection an exceedingly interesting observation has been noted by FREUND and LEVY (*Berliner klinische Wochenschrift*, 1895, No. 25, p. 539), who have reported the case of a woman, twenty-four years old, who in the fifth month of her third pregnancy was attacked with typhoid fever. The highest temperature reached was 104°, and the variations for two weeks ranged between this and 100.4°. In the fourth week of the disease, when the temperature rarely exceeded 101.3°, the fetus was rather suddenly expelled. A single vaginal examination had been made with the greatest care, the hands being disinfected with mercuric chlorid, the external genitalia being washed with soap and water, and they and the vagina irrigated with lysol, followed by the application of a cotton pad. The fetus was directly received into a sterilized glass vessel, but lived for only a short time. There were no complications and the woman went on to recovery. The uterus contracted well, and the placenta, which was expelled within a short time, was received into the same vessel as the fetus. The placenta was distinctly marginate; the entire decidua remained in the uterus, but was readily detached with the finger. In the sixth week after delivery the woman suffered a relapse of the fever, lasting ten days. Twenty minutes after the birth of the child cultures were made from the splenic fluid, the blood, and the placenta. In the course of three days a number of typhoid-colonies were found in the placental and splenic inoculations. Similar colonies also developed upon plates prepared from bouillon into which a portion of spleen had been thrown, and which had been kept in a thermostat for twelve hours at a temperature of 98.6°. The fetal spleen was slightly enlarged and soft, but the intestines presented no lesion. Neither hemorrhage nor infarction nor other noteworthy morbid change could be detected in the placenta.

In this case the expulsion of the fetus must be attributed to the infectious process with its concomitant manifestations, for both the placenta and the fetus presented no well-defined evidences of disease.

***The Bicycle-ambulance and the Bicycle.***—From Germany comes the news of a novel utilization of the bicycle that seems likely to be of considerable interest and value to the medical profession. One of the ingenious city physicians of Berlin has invented an emergency-ambulance consisting, roughly speaking, of a narrow spring-cot supported upon the frames of two bicycles and a third wheel. The cot is hung upon an elaborate set of springs and is provided with a water-proof coop-like cover of canvas stretched over steel bows, which can be readily lifted on and off like a lid. A seat is arranged at the head of the bed, over the third wheel, for the doctor, beside which is a box for remedies and dressings. Thus the physician (if young and active) and one attendant can

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rapidly propel the machine to the site of the accident, while the patient is placed upon the cot with the doctor seated where he can give his whole attention to the former, and the outfit is propelled back to the hospital. The ambulance is so light and strong in construction that the run can be made at quite as high a rate of speed as is compatible with safety. The advantages are obvious—no horse, feed, or stable is required (the latter with its large space-requirements and odors being quite an item in city hospital-premises). No shed is needed for the vehicle and horse to stand in while awaiting a call; there are no delays, *e. g.*, in ordering by telephone from the stables, etc. The machine can be kept in the receiving-room or entrance corridor, and with wide doorways and a gangway at the entrance-steps can be pushed with its burden right into the ward and the patient lifted directly upon his bed. We are already much indebted to the bicycle as a most beneficially athletic substitute for the traditional "doctor's cart," as a new and attractive "oxidation-prescription" for our patients, as a means of giving city-prisoners a knowledge of the country, etc. Perhaps there should not be omitted a word of praise to it as the only influence in nineteen centuries that has had the slightest appreciable effect in inducing women to make a rational modification in their attire. For this let us bow before "the wheel" with grateful respect, for it has done more in ten years than we have in as many generations—it has made an impression upon the fashion-plates. Will it bring about the abolition of the petticoat-abomination? The skirt, may we believe, is at last "divided against itself," and perhaps even the corset will be scheduled as the next to "go." One cannot "scorch" in a strait-jacket. All honor to the bicycle! It has made a breach—we will not say breeches—in a rampart against which the united forces of the profession, the bench, and the pulpit have surged in vain.

***The Treatment of Typhoid Fever with the Serum of Immunized Animals.***—We have on previous occasions cited experiments in the treatment of typhoid fever with the serum of convalescents[1] and with the products of bacterial activity.[2] It was to be expected that the recent developments in the antitoxic treatment of diphtheria would stimulate renewed activity in this direction, even though it is not yet possible to reach a final conclusion.

As a contribution to the progress in this field of investigation Klemperer and Levy (*Berliner klinische Wochenschrift*, 1895, No. 28, p. 601) detail the results of a series of interesting observations upon the influence of the milk and serum of immune animals in preventing typhoid fever and ameliorating an already existing attack. As, on account of the long course of the disease, repeated treatment would be necessary, it was at once seen that considerable quantities of the immunizing fluid would be required, the first experiments were undertaken with the milk of immune animals. This was readily obtained by immunizing a goat. It was found that this method was impracticable, as the immunizing influence of the milk was lost by ingestion through the stomach, and injection into the bowel, though efficient, is obviously not feasible in typhoid fever. It was, therefore, finally concluded that resort would have to be had to blood-serum. With this end in view the dog, as having considerable natural immunity to the disease, was selected as the most suitable animal. By treating dogs with gradually increasing amounts of bouillon-cultures of typhoid-bacilli it was possible not only to immunize susceptible animals, such as mice and guinea-pigs, to the action of virulent typhoid-bacilli, but also to effect a cure of the attack when treatment was instituted some time after infection had been established.

After it had been determined that the serum thus obtained was innocuous when administered to human beings in small quantities by subcutaneous injection, the treatment of five patients with typhoid fever was undertaken. Each of these received three injections on successive evenings. These were well borne and gave rise to no discomfort, or exanthem, or albuminuria. All of the cases were in the first week of the disease, and all pursued a mild course. It is admitted that the disease was not aborted by the treatment, although it was thought the attack was simplified and abbreviated, the natural immunity being hastened. At the same time the observations show that the treatment is perfectly harmless.

[1] THE MEDICAL NEWS, Nov. 19, 1892, p. 583.
[2] Ibid., Dec. 16, 1893, p. 691.

***Chronic Inebriety and its Incurability.***—In the annual report of the Walnut Lodge Hospital for Inebriates, Dr. T. D. Crothers gives a record of 66 patients that had been treated in the institution previous to 1885. Of this number 21 are dead, having relapsed and brought on death by their excesses, 16 are living orderly temperate lives and can be considered cured, 4 are insane, 10 are hopeless inebriates, and 15 are given to occasional sprees. The small percentage of permanent cures is somewhat discouraging, though, as a rule, only the more chronic drunkards seek hospital-treatment.

Of 58 inebriate patients treated in 1894. 43 had been in other institutions previously. The number of relapses from the so-called "gold-cure" is increasing, and Dr. Crothers finds symptoms of acute insanity common among such individuals.

The chronic inebriate must be handled in a different way from the acute alcoholic. Some States have a so-called Habitual Drunkard Act, under which persons arrested several times for drunkenness can be committed to an inebriate-asylum for an indefinite period of time. If all chronic drunkards were thus treated and kept under lock and key, the cost would no doubt be very great, and yet only a tithe of what it is at present. Persons have been sentenced to imprisonment thirty and more times a year for drunkenness. More than one-half of all arrests are for this cause. The chronic drunkard is a constant menace to society, a clog on the wheels of industry, and the amount of trouble that he causes is incalculable. He must be restrained, as the lunatic is, for the safety of society.

***A "Pathological Meeting."***—According to a notice in *The Lancet* of June 29, 1895, "A Pathological meeting of the Neurological Society will be held on July 11th." And notwithstanding many such things, our humor-loving and kind-hearted British friends find much pleasure, to which, of course, they are heartily welcome, in measureless contempt and scorn of "Americanisms."

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# SELECTION.

### *VIVISECTION AND KINDNESS TO ANIMALS.*

ACCORDING to the biographic sketch of Professor Mosso, Ludwig, the greatest of vivisectors, was President of the Leipsic Society for the Protection of Animals, and remained to the last one of its most active members. Germany owes it to him that her horses and beasts of burden are now humanely treated. To him is due that awakening of the true humanitarian spirit toward the brute creation that culminated in the "Verband der Thierschutz-Vereine des Deutschen Reichs" (Union of German Societies for the Protection of Animals). It was mainly from her sense of the gentler attitude to be encouraged toward animals on the part of the rising generation that Leipsic made him an honorary citizen on the fiftieth anniversary of his graduation in medicine. "No physiologist," continues Professor Mosso, "has ever sought with greater frankness than he to impose just limits on vivisection. The gates of his institute were ever open to all who wished to assure themselves that he, in the midst of his experiments, knew how to spare suffering. The vivisector's art attained such perfection in his hands that, having to sacrifice an animal, he did not let it feel that it was even being tied. He would apply the muzzle and instantly proceed to the exhibition of ether or chloroform, which, in a few seconds, in a dog, for example, made it insensible." "It is an error," adds Professor Mosso wisely, "to believe that experiments can be performed on an animal which feels. The perturbation induced by pain in the functions of the organism is so profound as to render useless the experimenter's study. It was Ludwig who uttered the celebrated *mot* that some physiologists, to study the nervous system, act like him who fires a pistol into a watch to see how the chronometer works. Suffering ought to be entirely eliminated from physiological experiment, because the instruments we employ to-day are so delicate that they become unserviceable the moment the animal is agitated or moves."—*Lancet*, No. 3748, p. 1651.

# REVIEWS.

A TREATISE ON THE NERVOUS DISEASES OF CHILDREN, FOR PHYSICIANS AND STUDENTS. By B. SACHS, M.D., Professor of Mental and Nervous Diseases in the New York Polyclinic, etc. Pp. 666, 162 illustrations. New York: William Wood & Co., 1895.

This book, written by one of the ablest of American neurologists, is a valuable contribution to neurology and pediatrics. It contains much original material, and everywhere bears the impress of the author's experience.

In an interesting introductory chapter are given the author's methods of investigating nervous disease in children, including various examination-schemes and the modes of testing vision, motion, sensation, and the like.

The general arrangement of the book is simple but good. Part I is devoted to general nervous diseases, under which head are included convulsions, epilepsy, hysteria, chorea, tetanus, tetany, headache, disorders of sleep, vasomotor affections, and trophoneuroses. Organic diseases of the nervous system are considered in Part II, chiefly under two heads, organic diseases of the spinal cord and organic diseases of the brain, but with two prefatory chapters on diseases of the peripheral nerves. As might be expected, the author has had considerable difficulty in determining what diseases to include and what to omit, as many of the nervous diseases of children also occur in adults. He has, however, exercised good judgment in this respect, very properly not discussing tabes and some of the forms of sclerosis; on the other hand, considering such disorders as epilepsy, hysteria, and tetanus, which occur both in children and in adults, and in children have points of special importance. Huntington's chorea and progressive muscular atrophy of the Aran-Duchenne type have also been properly given a place, these affections needing to be related to and contrasted with the dystrophies, atrophies, and choreas and family forms of disease occurring in children.

The chapters on diseases of the spinal cord and of the brain are introduced by careful but not too elaborate discussions of their anatomy, physiology, and pathology, excellent judgment and discrimination being displayed in the selection of the material, which has been drawn from the work of the most recent investigators.

In a brief appendix are given a few valuable therapeutic suggestions.

A notable and valuable feature of the work consists in the tables of differential diagnosis scattered throughout the volume, and evidently prepared with great care. They will prove of particular value to students and general practitioners. An especially valuable table for practical purposes is found in the introductory chapter, under methods of investigation. Beginning with the ciliary and sphincter iridis muscles and proceeding to the quadratus lumborum and abdominal muscles, this table gives in parallel columns the names of all the important muscles with their normal functions, the symptoms of deficient action, innervation, and the diseases in which the muscles are commonly involved.

Space will not permit an analysis of the book worthy of its contents, and where there is so much to approve it is difficult to pick out special portions for commendation.

Many of the shorter articles, such as those on abscess of the brain and sinus-thrombosis, are compact yet lucid expositions of the subjects considered. The discussion of infantile cerebral palsies is the best in any text-book, showing much original work, clinical, histologic, and pathologic. Muscular atrophies are thoroughly discussed, the points of distinction between the spinal, neural, and myopathic forms being clearly brought out both in text and tables.

Under the head of hereditary or family diseases of the spinal cord are included hereditary ataxy, hereditary spinal paralysis, the family type of progressive muscular atrophy, etc. It would probably have been best to put in this same category of family diseases hereditary chorea, Thomsen's disease, and congenital paramyotonia, as, strictly speaking, these affections are not spinal or cerebral, but cerebro-spinal and of embryonal origin.

The chapter on insanity is brief but sufficient for a general work on the nervous diseases of children.

Particular attention has been given to the subject of arrested and aberrant development, and the evidences of this work are seen in several portions of the book, es-

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pecially in the chapters on defective development of the brain and on idiocy and imbecility.

Short bibliographies are appended to each chapter. Although thoroughly acquainted with foreign neurologic literature, the author has not neglected the writings of his own country. The letter-press and illustrations are of the highest order.

FIRST ANNUAL REPORT UPON THE BIRTHS, MARRIAGES, DIVORCES, AND DEATHS IN THE STATE OF MAINE FOR THE YEAR ENDING DECEMBER 31, 1892. Augusta: Burleigh & Flint, 1894.

THIS report was compiled by the Secretary of the State Board of Health, Dr. A. G. Young, in accordance with an Act of Assembly approved in 1891. The statistical tables are accompanied by "Notes" elucidating the data presented, and containing instructive comparisons and comments.

The birth-rate for 1892 was 21.21 for each 1000 of the population; and for each 100 girls born there were 106.7 boys, a preponderance of the births of boys "which conforms with the results of the registration of births almost everywhere." The marriage-rate was 8.56 to every 1000, and there was nearly one divorce to every ten marriages solemnized!

The death-rate was 18.37 to every 1000 of population as returned by the census of 1890, and 18.30 on the estimated population for 1892. Among the causes of death tuberculosis, with a rate of 22.88 per 10,000, stands foremost, pneumonia following with a rate of 21.56. The rate for influenza, which was epidemic during the winter, was 11.43 per 10,000, which is partly accounted for by the fatality of this disease at the extremes of life and the proportionately large number of the aged to the total population, due to the emigration of young men and women to the Western States.

The number of deaths from whooping-cough exceeded that from scarlet fever, a fact that lends emphasis to the comment that the former is a more serious disease than the general public supposes it to be.

THE HUMAN ELEMENT IN SEX. BEING A MEDICAL INQUIRY INTO THE RELATION OF SEXUAL PHYSIOLOGY TO CHRISTIAN MORALITY. By DR. ELIZABETH BLACKWELL. New Edition. London: J. & A. Churchill, 1894.

THIS small book is, in the main, a plea for the instruction of parents in sexual physiology, as only through such knowledge can they appreciate their responsibilities as guardians of the young, and avert the evils arising from ignorance or pernicious teaching regarding the sexual faculty.

"It is the predominance of the mental or spiritual element in our nature," says the author, "which is the characteristic fact of human sex," a radical distinction between the sexual faculty in man and the brute creation greater than any resemblance between them. In virtue of this difference—of this human element—"sex in the human race is capable of great development toward good or evil," an important fact that bears a positive relation to the well-being of succeeding generations.

Chastity is a physiologic law imposed in the interests of society, a providential check on the blind, unrestrained use of the sexual impulse necessitated by our physiologic structure for the vigor and continuance of the race. It is an equal obligation of the sexes; other reasoning (based on erroneous knowledge—misapprehension of the equivalent functions of ovulation and spermation) implies inferiority in the male—less power of self-control and of self-adjustment than is possessed by the female.

THE ROYAL VICTORIA HOSPITAL, MONTREAL. First Annual Report, for the Year ending December 31, 1894.

THE first annual report of the Royal Victoria Hospital, Montreal, which has just been received, presents several features of interest. In the first place, the secretary and the management are to be congratulated upon the clean, clear appearance of the pamphlet, and the medical staff upon the admirable arrangement of the statistical report. During the year 1570 patients were treated, with a death-rate of 5.9 per cent. The expenditure of the year was a little over $65,000, which seems to be an extremely reasonable amount, considering the extent of the hospital-plant.

The statistical report has evidently been prepared with great care, and in addition to the usual columns of the admitted and discharged there is a third noting the number of days in hospital.

It is interesting to note that on the medical side there were only two cases of appendicitis admitted, both of which were cured; while on the surgical side there were forty cases admitted. On turning to the table of operations one sees that thirty-six of the latter cases were operated upon, with three deaths.

Of typhoid fever eighty-four cases were admitted, seventy-two discharged cured, and only three deaths, a remarkably low percentage. It would be interesting to know if systematic hydrotherapy was employed.

We congratulate the management and the professional staff on the completion of the first year of what will doubtless prove a most beneficent work for the entire Dominion of Canada.

SYLLABUS OF GYNECLOOGY, BASED ON THE AMERICAN TEXT-BOOK OF GYNECOLOGY. By J. W. LONG, M.D. Pp. 133. Philadelphia: W. B. Saunders. 1895. Price, $1.00.

DR. LONG'S book is a tabulated synopsis of the *American Text-book of Gynecology*, interleaved for note-taking, and prepared with a three-fold object: First, to be used as lecture-notes; secondly, to enable the student more intelligently to follow and remember the lecture; and, finally, as a convenient reference for physicians. The book is well adapted to the purpose for which it was intended, but shows evidence of haste in its preparation. Thus we read of H*a*gar's colpoperineorrhaphy; dysmenorrhea is spelled with an *æ* at one place and an *e* at another; *æ*dema is used throughout, while *ce*liotomy and gonnorh*ea* receive the preference; and colporraphy is spelled as here written. We are also told that the use of electricity in uterine fibroids is still *sub judice*. The book may be materially improved by the removal of such defects as those mentioned.

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# NEWS ITEMS.

***Prof. Rudolph Leuckart.***—It is proposed to celebrate the fiftieth anniversary of the accession of Prof. Leuckart to the doctorate, on December 13, 1895, by the erection of a marble bust of the distinguished zoölogist.

***William W. Browning, A.M., M.D.***—The degree of Master of Arts was conferred on Dr. W. W. Browning, of Brooklyn, by Yale College at its recent commencement.

***Prof. Englisch*** has succeeded Prof. Dittel in the direction of the Third Surgical Clinic of the Vienna General Hospital.

***For the James E. Reeves Fund.***—We have received from Dr. G. L. Magruder, $1.

***Meetings of State, National, and International Medical Societies.***

| | Meets. | Next meeting. |
|---|---|---|
| American Association of Obstetricians and Gynecologists. | Sept. 20, 1895 | Chicago, Ill. |
| American Dermatological Association. | Sept. 17, 1895 | Montreal, Can. |
| American Electro-Therapeutic Association. | Sept. 3, 1895 | Toronto, Can. |
| American Medical Association. | May 5-8, 1896 | Atlanta, Ga. |
| American Microscopical Society. | August 21-23, 1895 | Ithaca, N. Y. |
| American Orthopedic Association. | Sept. 19-21, 1895 | Chicago, Ill. |
| Canadian Medical Association. | Aug. 28-30, 1895 | Kingston, Ont. |
| Idaho State Medical Society. | Sept. 9-11, 1895 | Boise City, Id. |
| Illinois State Medical Society. | May 19, 1896 | Ottawa, Ill. |
| International Congress of Gynecology & Obstetrics. | September, 1896 | Geneva, Switzerland. |
| International Congress of Hydrobalneotherapy. | 1895 | Ostend. |
| International Congress of Otology. | Sept. 23-26, 1895 | Florence, Italy. |
| International Medical Congress. | August, 1896 | Moscow, Russia. |
| Medical Association of Georgia. | April 15, 1896 | Augusta, Ga. |
| Medical Association of the State of Alabama. | April, 1896 | Montgomery, Ala. |
| Medical Society of the State of New York. | Jan. 28, 1896 | Albany, N. Y. |
| Medical Society of Virginia. | September 3 | Wytheville, Va. |
| Mississippi Valley Medical Association. | September 3-6 | Detroit, Mich. |
| New York State Medical Association. | October 15-17 | New York City |
| Ohio State Medical Society | May 27-29, 1896 | Columbus, O. |
| Texas State Medical Society. | April, 1896 | Ft. Worth, Texas. |
| Tri-State Medical Society of Illinois, Iowa, and Missouri. | Oct. 1-4, 1895 | Des Moines, Iowa. |
| Utah State Medical Society. | Oct. 1, 2, 1895 | Salt Lake City. |
| Vermont State Medical Society. | October 10, 11 | Burlington, Vt. |

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# THE MEDICAL NEWS.

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## ORIGINAL ARTICLES.

### THE PRESENT STATUS OF THE DIPHTHERIA-QUESTION.


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MUCH can be learned from a study of the present status of the diphtheria-question. What is more important, a proper direction may thereby be given to future work. It is strange how the minutiæ of diseases escape careful consideration until some special line of research calls for the most exact examination of all details. Future work on diphtheria can be made more rapidly productive of results when the questions to be solved are accurately outlined. Certain it is that the diphtheria-problem cannot be reduced to the same simple formula in man as in the lower animals. In the artificial diphtheria of animals the Loeffler bacillus is the exciting cause, the antitoxin is the neutralizing agent—and there the matter ends. In man, however, many etiologic factors remain yet to be solved.

The use of Loeffler's culture-serum for diagnostic purposes, though adapted to clinical ends, has led to scientific misconceptions. Throughout the recent literature we find the terms "pure culture" and "mixed infection" used haphazard. These terms lack scientific definiteness. No one knows exactly what "mixed infection" is, and there is reason to doubt if a "pure infection" ever occurs. Nothing can be more self-evident than that the question of mixed or pure infection cannot be solved by one culture-medium alone, especially if that medium is especially devised to favor the growth of one germ and retard the growth of others. To use Loeffler's culture-serum for diagnostic purposes is highly satisfactory; to use it as a basis of scientific differentiation is clearly irrational.

Silberschmidt[1] examined 91 cases of diphtheria with Loeffler's serum, bouillon, and glycerol-agar, and all but one showed the presence of streptococci or staphylococci. Those who work with glycerol-agar alone will sometimes fail to detect the Loeffler bacillus when it is present in the throat; and those who work with Loeffler's serum alone will fail to find other germs that could be demonstrated by other means.

Bernheim[2] has shown that if streptococci and Klebs-Loeffler bacilli are inoculated in the same tube the streptococci are retarded in development. Bernheim by the use of glucose-bouillon and Loeffler's serum demonstrated that none of his cases presented "pure infection."

In a recent examination of over 120 throat-cases I failed to find any that might be considered a "pure infection."

The term "mixed infection" is far from standing for anything definite. If every case in which streptococci or staphylococci are present at the site of infection is a case of mixed infection, then cases of pure diphtheria are rare indeed. The predominance of one germ over another cannot be made the basis of scientific discrimination, especially if only one culture-medium is used. In follicular tonsillitis staphylococci and streptococci are present. In a case of "mixed diphtheria" we should expect in addition to the symptoms due to the Klebs-Loeffler-bacillus those due to the streptococcus and the staphylococcus; but this is notoriously untrue, as the symptoms (fever, headache, backache) of follicular tonsillitis are usually more severe than those of diphtheria.

What is "mixed infection," and how can we tell that the cocci present in a diphtheric throat are playing any *rôle* in the disease? Certainly, to talk of the comparative value of the antitoxin in cases of pure and in those of mixed infection is thoroughly irrational, as we do not know what is pure infection and what is mixed infection. A prognosis cannot be made from the bacteriologic examination, as some cases die in which staphylococci predominate, others in which Klebs-Loeffler bacilli predominate. It may be interesting to note here that Bernheim[1] has shown that if animals are inoculated with the filtrate of cultures of diphtheria-bacilli and streptococci, the disease runs a more violent and rapid course; if, however, a filtrate of cultures of staphylococci is used in large quantity the disease is milder than in cases of pure diphtheria.

The question of deciding the infectiousness of convalescent patients is not so easy as was supposed. When a pharyngeal culture fails to reveal the presence of virulent Klebs-Loeffler bacilli the patient is usually dismissed as no longer dangerous. Tezenas du Montcel[2] showed that when there is a nasal discharge the pharyngeal culture may repeatedly prove negative, and still virulent bacilli may persist in the

[1] Münchener medicin. Wochenschr., Feb. 26, 1895.
[2] Zeitschr. f. Hygiene, B. xviii, H. iii.

[1] Loc. cit.
[2] La Province Méd., August 5, 1893.

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nose from one to eight weeks. Sevestre et Méry[1] examined 18 cases from day to day in 1893. In one case non-virulent bacilli persisted in the pharynx several days; one month later the bacilli were found to have regained virulence and a sister of the patient was seized with the disease. In two other cases virulent bacilli were found fifteen days after recovery, although intermediate cultures revealed only non-virulent bacilli. In two other cases pharyngeal cultures were negative, though nasal cultures showed virulent bacilli, in one case up to the forty-ninth day. These researches prove that non-virulent bacilli may regain their virulence, and that an existing nasal discharge should not be overlooked in declaring convalescents contagion-free.

The relation of albuminuria and nephritis to diphtheria is another subject that requires clearing up. All writers have noted the great frequency of albuminuria in diphtheria, and most of them have used albuminuria and nephritis as interchangeable terms. Nothing has been made more clear by recent study than that in a large proportion of cases the albuminuria of diphtheria does not depend on nephritis. We are not justified in diagnosticating nephritis unless we find epithelium, casts, or blood in the urine. Anyone who takes the trouble to examine diphtheric urine microscopically will be surprised to find how often albuminuria may exist without the presence of renal elements in the urine. Fischer[2] reports 141 cases of albuminuria without casts. I have myself frequently examined the albuminous urine of diphtherics without finding evidence of nephritis. Schroeder[3] reports 44 cases of albuminuria, only 6 of which presented evidence of nephritis. The Stadt Physikat of Triest[4] reports 105 cases of diphtheria; 75 of these had albuminuria, but only one-half of these had casts in the urine. This rather startling clinical evidence is made more striking by post-mortem observations. Goodall[5] reports 30 cases of suppression of urine in diphtheria, leading to a fatal issue in 27 cases. The common characteristics of these cases were: Severe local disease; marked albuminuria; never hematuria or sediment in the urine; anuria more or less complete; frequent vomiting and cardiac failure. Post-mortem examination of the kidneys showed them to be usually normal to the naked eye in every respect. Ten cases were examined microscopically and only trivial changes found. Nothing can be more conclusive than that marked albuminuria and renal insufficiency may be due to causes outside of the kidneys themselves. F. Siegert[6] reports a series of 100 tracheotomized diphtheria-cases; 27 of these had albuminuria, but nephritis was found post-mortem only three times; 10 patients had from 0.5 to 6.0 per cent. of albumin in the urine *intra vitam;* very careful post-mortem examination failed to reveal the presence of nephritis.

In estimating the effect of the antitoxin on the kidneys, therefore, much more must be taken into account than the existence or the degree of albuminuria. In fact, a new subject is opened for investigation, and the albuminuria of diphtheria has yet to be explained. One thing seems fairly certain, viz., that the antitoxin exerts no harmful influence on the kidneys.

It is probable that the experiments of Mya[1] represent the truth of the matter, viz., that the antitoxin has no appreciable effect on heart, blood, or kidneys. This observer watched four children from eighteen months to six years of age. He kept them under very close observation for several days, noting pulse, diurnal temperature-variation, blood, and urine. Then he injected 30 c.cm. of the antitoxin, and noted the changes during the succeeding hours and days. The first child, aged six years, convalescent from measles, presented the following conditions for several days before inoculation: The erythrocytes numbered 5,160,000; the leukocytes 6916. The average quantity of urine for twenty-four hours was 660 c.cm.; the specific gravity was 1014; the urea equalled 14.25 gm.; there was present neither glucose nor albumin, but a trace of indican. The rectal temperature varied from 37.5° C. to 37.8° C. The injection of the antitoxin was followed in a few hours by a reduction of the erythrocytes to 3,541,666; an increase of the leukocytes to 9381. No variation was noted in pulse or temperature. The urine increased to 1280 c.cm. on the second day; the secretion was free from albumin, glucose, and urobilin. All of these variations were transitory, and in a few days the normal was regained. The results in the other three children were the same. The changes due to the antitoxin may be summarized as: 1. Transitory diminution of the red blood-corpuscles. 2. Slight leukocytosis. 3. Polyuria. 4. Slight increase in the excretion of urea.

That the oligocythemia was not due to destruction of corpuscles is proved by the absolute absence of urobilin from the urine. It was probably due to dilution of the blood from the lymph-channels, as also evidenced by the leukocytosis and polyuria.

These observations of Mya are very important, as they were conducted with great care. Moreover, they agree with other clinical observations. Albuminuria is present in a majority of cases of

[1] Revue des maladies de l'Enfance, Mars, 1895, pp. 108–118.
[2] Medical Record, April 6, 1895.
[3] Münchener medicin. Wochenschr., April 4, 1895.
[4] Wiener klinische Wochenschr., 1895, No. 3, p. 55.
[5] Lancet, 1895, pp. 269–273.
[6] Therapeutische Monatshefte, 1895, p. 123.

[1] Sull' azione fisiologica del siero antidiftero nell organissimo infantile. Lo Sperimentale, April, 1895.

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diphtheria treated without the antitoxin, being variously estimated by Henoch, Baginsky, and Eberth, as occurring in from 50 to 60 per cent. of all cases. Schwalbe[1] reports 470 cases of diphtheria in the Friedrichshain Hospital before the antitoxin-period; albuminuria was found in 227, though examinations were made but once in each case. Kolisko[2] says that in 75 post-mortems of cases treated with the antitoxin the kidneys presented no deviation from kidneys seen before the antitoxin-period. Ganghofner,[3] in a most guarded paper, reports albuminuria, lasting any considerable time, as occurring in only 20 of 110 injected cases. Of 33 cases injected on the first or second day, none had severe albuminuria. In Cincinnati albuminuria occurs in nearly every severe case of diphtheria. I had the opportunity in March of making a curious observation of five children in two families, two of whom were treated with and three without the antitoxin. The cases all ran a mild course, but all suffered from rather marked albuminuria. The cases lay side by side in a hospital-ward. The appetite was good in all, and there was no pain, no edema, no morphotic elements in the urine; yet the albuminuria persisted in all, notwithstanding treatment for from two to three weeks. Authorities are almost unanimous in the belief that the antitoxin does not lead to increase in the proportion of albuminurics, some even noting a diminution.

Testimony on the subject of the heart is variable, the vast majority of writers noting no bad effects on the heart. Some few, among whom is Baginsky, believe that the heart is unfavorably affected. Mya observed absolutely no variation in the rate, rhythm, or tension of the pulse, as shown by sphygmographic tracings. Observations of the blood have yet to be made. Certain it is that fear of bad effects need cause no one to abstain from the use of the antitoxin.

It is yet impossible to determine the effects of the antitoxin on the paralysis of diphtheria. Exact figures are not available. The occurrence of paralysis varies in different epidemics and in different regions. In Berlin it is very common (Henoch); in Munich it is not often met with (Seitz); in Halle it is uncommon (v. Mering). It seems incredible that the use of the antitoxin should increase the proportion of cases attended with paralysis; clinical reports, on the other hand, seem to show that the proportion is not reduced. Heubner[4] reported paralysis in 7.4 per cent. of 207 cases treated with the antitoxin; C. Seitz[5] injected 74 cases on the first or second day of the disease, and encountered some very severe cases of paralysis. Hager[1] had 3 cases of paralysis among 20 under observation; Washburn[2] 6 among 48 survivors; Fischer 21 in 190 cases; Mya[8] 5 in 50 cases; Soltmann[4] only 4 among 76 recoveries; Germonig[5] only 8 in 290 survivors; Siegert[6] 33 in 100 tracheotomized cases; and so on through a long list. It is advisable to look over old records of the pre-antitoxin-period and strike a general average for each locality, and then to follow up all new cases with watchfulness. This will require years of attention, and this is destined to be one of the last problems connected with the subject to be solved.

When we come to the final question as to how far the antitoxin has reduced the mortality of diphtheria we enter upon a most perplexing field of inquiry. When all is said and done, the statistical method is the court of ultimate appeal; and yet just this method exposes us to a thousand errors. Here, too, it will be found profitable to seek the sources of error and eliminate them as far as possible from future research and summaries. Up to the end of January over 3000 reported cases had been collected, with a mortality of 20 per cent. (Heubner), and reports since that time have given us about the same results. On its face-value this seems to give us a marked reduction in mortality as compared with former times, and yet a critical estimate bids us withhold our judgment.

I should like to emphasize the following propositions:

1. Hospital-statistics considered by themselves are likely to be misleading. 2. Diphtheria treated under favorable conditions is not so fatal a disease (even in Europe) as is commonly supposed. 3. The bacterial criterion of diagnosis has a wide influence on the results achieved.

*Regarding Hospital-statistics.* Common observation teaches us that agitation of new remedies among the populace leads to a rapid influx of patients suffering from that disease to the centers of treatment. In 1890 the tuberculous world flocked to Berlin and to the hospitals for tuberculosis. During the past year hospitals have dealt with vastly more cases of diphtheria than heretofore. We are indebted to Gottstein, of Berlin,[7] for some brilliant observations on this score. He compares the admissions and deaths in the Berlin hospitals with the municipal cases and deaths during the past five

[1] Deutsche medicin. Wochenschr., 1894, No. 51.
[2] Therapeutische Monatshefte, February, 1895.
[3] Prager medizin. Wochenschr., 1895, Nos. 1, 2, and 3.
[4] Münchener medicin. Wochenschr., April 4, 1895.
[5] Ibid.

[1] Therapeutische Monatshefte, Feb. 1895, p. 91.
[2] British Medical Journal, Dec. 22, 1894.
[3] Lo Sperimentale, Feb. 21, 1895.
[4] Deutsche medicin. Wochenschr., 1895, No. 4.
[5] Wiener klin. Wochenschr., May 23, 30, 1895.
[6] Loc. cit.
[7] Therapeutische Monatshefte, Jan. 1895, p. 33.

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years. From September 30th to November 24th there died of diphtheria in the Berlin hospitals, in 1890, 131 cases; in 1891, 124 cases; in 1892, 178 cases; in 1893, 197 cases; and in 1894 (antitoxin-period), 131 cases; the admissions, however, during this period increased from 328 in 1890 to 712 in 1894. The mortality in Berlin from diphtheria is less than half the mortality in the Berlin hospitals; *i. e.*, the severest cases are sent to the hospitals. Now if all of the cases in Berlin were sent to the hospitals the mortality would, without any change of treatment, fall, *eo ipso*, 50 per cent.

This is just what happened in the autumn of 1894. The number of admissions more than doubled and the mortality sank 50 per cent. The total mortality, however, was not thereby reduced, and as many cases died in 1894 as in 1890, only the place of their dying was changed. In 1890 there were 1591 deaths from diphtheria in Berlin, of which 682 (or 43 per cent.) occurred in the hospitals; in 1894, from January 1st to November 24th, there were 1281 deaths in Berlin, of which 737 (or 57.5 per cent.) occurred in the hospitals. Gottstein concludes with complete justification as follows: 1. The death-rate in hospitals was reduced 50 per cent., because twice as many cases were admitted. 2. The total mortality in hospitals in 1894 (to November 24th) was already larger than for 1890 or 1891. 3. The total mortality in the hospitals *and* the city was not at all reduced.

This able analysis explains the apparent benefit of the antitoxin in many other hospitals, and we may justly doubt the value of the statistics of any hospital that has suddenly experienced a large increment of patients.

With very few exceptions it is true that the mortality from diphtheria in cities at large is very much less than in the diphtheria-hospitals, and hence any influx from the city to the hospital would of itself lower the mortality-percentage of the latter. This is exemplified in the reports from Trieste.[1] In 1893, 110 cases were treated in the hospital and 52.7 per cent. died; in the first eight months of 1894, 149 cases were treated and 46 per cent. died. Now came the antitoxin-period; in the next five months 362 cases (!) were admitted and the mortality was naturally reduced to 20 per cent. Hahn reports from the Friedrichshain Hospital that though the number of cases in 1894 was very much increased, the total mortality in the hospital was not reduced, but only the percentage. Thus we see that hospital-statistics *per se* are unreliable, and we should know in every case the number of cases treated as compared with the total number in the respective city.

*Diphtheria treated under favorable conditions is not so fatal a disease as is commonly supposed.* At the Congress of Internal Medicine, recently held in Munich,[1] Baginsky said that his contemplation of diphtheria in former years was among the most gloomy of all his experiences: "In the diphtheric pavilion I gained the impression that we were absolutely helpless in dealing with diphtheria, and that nursing did more than medicines." All this sounds dramatic, but we must remember that at the Munich Congress Baginsky was pleading the cause of the antitoxin. In 1891 his contemplations were not so gloomy, nor his results so bad as he has since depicted them. In his *Arbeiten aus dem Kaiser u. Kaiserin Friedrich Kinderkrankenhause*,[2] published in October, 1891, he thus sums up the work of the diphtheria-pavilion for the first year of the hospital's existence: 244 cases were treated; the mortality was 40 per cent.; thirty-seven of these cases were admitted with far-advanced septic and gangrenous diphtheria and died soon after admission. "Subtracting these cases," says Baginsky (p. 246), "but including a larger number of those that were tracheotomized, we had a mortality of 23.1 per cent., a result in diphtheria with which we ought to be very well satisfied." In his recent book he reports 527 cases treated with the antitoxin, with a mortality of 15.6 per cent.

Much stress is laid by the upholders of the antitoxin on the fact that the sooner the cases are injected the better the prognosis; and the brilliant achievements of the antitoxin in this particular are above dispute. It is, perhaps, not useless to call attention to the fact that before the antitoxin-period the prognosis was good in cases brought early for treatment.

F. Siegert[3] gives his results in the treatment of diphtheria without the antitoxin in the children's clinic at Strasburg. He cites in detail 100 cases that required tracheotomy—hence all severe cases. Six were received on the first day of the disease—none died; ten on the second day—two died. After the second day the mortality ranged from 31 to 53 per cent. Siegert urges further that fatal complications do not arise, as a rule, until after the fourth day, and that, therefore, if cases are treated early the mortality will be reduced *eo ipso*. Of fifty fatal cases in his clinic, there died on the first three days of the disease none; on the fourth day five; on the fifth day eight, etc. Dangerous symptoms do not arise early; parents wait until death seems imminent and then hurry their children to the hospital. During the antitoxin-period they take them early, and hence the percentage of recoveries is greater.

[1] Germonig: Wiener klin. Wochenschr., May 23, 30, 1895; and Stadt-Physikat, Ibid., 1895, No. 3.

[1] See Münchener medicin. Wochenschr., April 2, 4, 9, 1895.

[2] Stuttgart: Ferdinand Enke.

[3] Therapeutische Monatshefte, March, 1895, pp. 118 *et seq.*

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Ritter[1] states that in the two years preceding the use of the antitoxin he lost no case of pharyngeal diphtheria that was brought early for treatment, although he had had altogether ninety-one cases.

Baginsky, Kossel, Ehrlich, and others emphasize the fact that after the injection of the antitoxin the membrane never spreads into the larynx. Ganghofner,[2] however, in an article friendly to antitoxin, cites his pharyngeal cases during 1893, and finds that in only two cases did the membrane spread to the larynx after treatment was instituted. The mortality among these pharyngeal cases was only 15.8 per cent.

We learn from all these observations that diphtheria treated promptly under favorable conditions (hospital-hygiene, good nursing, food, and air) is by no means so fatal as we are taught to suppose, but that even in the pre-antitoxin-days the mortality was great only among neglected or improperly situated patients. In private practice, in Cincinnati, at least, the percentage of fatal cases is small; the mortality ranges here from 19 per cent. (in 1891) to 33 per cent. (in 1888), but the death-rate among the upper classes is very much less.

It is not true, as was first supposed, that all cases treated on the first or second day with the antitoxin will recover. Ganghofner had two cases that were injected on the second day to prove fatal; Heubner[3] reports failure in a few cases injected on the second or third day. Kohts[4] injected a case on the second day; twenty-four hours afterward new and extensive membranes formed. In another case, injected on the second day, the larynx became involved later, and tracheotomy was required. In the Trieste hospital five cases died, though injected on the second day.

Soltmann[5] had thirteen deaths among eighty-nine cases; six of the fatal cases were injected during the first four days of the disease; and in thirteen cases the membranes descended to the pulmonary alveoli, notwithstanding the antitoxin.

Vierordt[6] reports eight deaths among fifty-five patients. Two of the fatal cases were injected on the second day and two on the third. Ritter details the following history: He saw a strong child, aged three years, that had been taken sick only a few hours before; on both tonsils circumscribed patches appeared; the temperature was 39.7°, the pulse between 110 and 120. Behring's antitoxin No. 3 was used. The membranes nevertheless spread, the larynx was invaded, tracheotomy was refused, and the child died on the sixth day.

We are compelled to admit that the antitoxin fails to cure in a certain proportion of cases, notwithstanding the fact that all other conditions are favorable.

Finally, a few words are in order regarding the effect of the bacterial diagnosis on hospital-statistics. Formerly, at least in American cities, though all the fatal cases were reported, many mild cases were not. Now, that bacterial diagnosis and municipal supervision render diphtheria-cases in a measure public property, many more cases will be brought to the notice of health-officers than formerly, and the mortality-rate will seem to sink. This is prettily illustrated in the recent health-report of Boston for the year 1894. Boston has not only a Bureau of Bacteriology, but it also has an army of school-inspectors to examine school-children. With these combined means an enormous number of cases of diphtheria are ferreted out, cases that formerly would have been called simple sore-throat. This statement is made in the report itself. Thus in 1894 Boston had 3019 cases of diphtheria. The greatest number of cases any previous year was 1814. We would expect from this an enormous reduction in the mortality, but find that the mortality (27.06 per cent.) is but slightly less than in preceding years—and yet the Boston authorities congratulate themselves on having reduced the rate of mortality by means of the antitoxin. They have simply reduced the rate by means of bacterial diagnosis and school-inspection, while the absolute mortality is far in excess of former years.

Enough has been written to show that the questions concerning diphtheria and the antitoxin are still in their infancy, instead of nearing solution. It is well to know the pitfalls that are in the way of our attaining the truth.

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[1] Wiener medicin. Wochenschr., April 27, 1895, p. 778.
[2] Loc. cit. [3] Loc. cit.
[4] Münchener medicin. Wochenschr., 1895, p. 343.
[5] Deutsche medicin. Wochenschr., 1895, No. 4.
[6] Deutsche medicin. Wochenschr., March 14, 1895.

## A CONTRIBUTION TO THE STUDY OF DEAF-MUTISM.[1]

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THE subject of deaf-mutism is one that does not appeal very strongly to the interest of the busy general practitioner, or, perhaps, even to the aurist. We think of the totally deaf as a class of individuals whose condition has removed them beyond the pale of aural treatment—an incurable class, to be relegated, if still young in years, to the attention of teachers in institutions for training in vocalization, as having passed beyond the range of the aurist's work. Clinical experience has shown clearly that,

[1] Read before the Medical Society of the State of Pennsylvania, May 24, 18 5.

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when total deafness has been found to exist, or when in mutes the degree of hearing is reduced to a vague sense of sound, the best interests of the child are considered when it is transferred to the care of oral teachers.

The questions in connection with deaf-mutism, however, that cannot but have interest for the physician, are those relating to the prevention of loss of hearing in early childhood. Examinations of deaf-mutes made by Holger Mygind, and others (including some observations of my own), show undoubtedly that strictly congenital deafness is a far from common cause for failure in acquiring speech. By congenital deafness I mean the existence of abnormalities within the tract of hearing that have appeared during the development of the fetus. That such conditions can exist has been proved by post-mortem examination, and there are in most institutions for the deaf and dumb instances of children that show such abnormalities in the external ears and in the contour of the skull that we can, with a fair degree of reason, believe that there have been corresponding failures or errors of development within the sound-perceiving apparatus.

It has been a rather common practice to classify all children that have never spoken, and that have never given signs of having heard, as congenital deaf mutes; but, considering the great number of conditions attending many forms of disease that may attack the infant in the first few months of life, and that may tend to involve the ears in an inflammatory process, it seems to me that very many elements of doubt must be cleared away before we can say definitely that a given case of deaf-mutism is congenital. In other words, in by far the majority of deaf mutes there were opportunities given the care-takers of the children for preserving the hearing, or for lessening the consequences of destructive processes that were annihilating one of the five senses. Thus coryza, the exanthemata, syphilis, asthenia after wasting diseases, may, in very early infancy, rapidly destroy the delicate aural tissues, while destruction is in progress, also, in other tracts of the body. This latter process may be noted and receive full attention from the children's care-takers, while the process within the ear is unnoted or ignored. The child recovers, and its disease leaves no impression on the organs whose lesions caused most anxiety to the medical attendant and to the family, yet the unnoticed aural complication has left permanent, perhaps total, deafness.

I have seen a child, about thirteen months of age, that had suffered for weeks, during a hot summer, from enterocolitis. Little attention was paid to anything above the diaphragm. During the active stage of the illness the child had at frequent intervals given vent to what has been termed the "hydrocephalic cry," but which is not uncommon in young children suffering from pain within the ears. The child pulled feebly at the left auricle and pressed its head against the pillow. Eventually, a slight discharge from the meatus of this ear appeared, but soon ceased, to be followed by a swelling over the mastoid process of the same side. The aural complication had now progressed for two weeks without attracting attention from the abdomen. Sweating, chills, and pyemic symptoms had been manifest, but not until a mastoid abscess bulged the left ear out like a horn from the infant's head did the attendants decide that the ear required any special care. A grave, destructive process, lessening the child's hearing, perhaps its power of speech for life, had progressed under the eyes of intelligent parents, nurse, and doctor. How frequent may not such instances be in the crowded, undisciplined homes of those whose children form the great number of our deaf-mute pupils, and whose statements as to the origin of deafness are accepted and furnish the data for statistics regarding the causes of deaf-mutism! No objective symptoms may occur that would be noted by such persons; yet an active destructive process may have caused total deafness, and the parents report that the child was "born deaf."

In a series of pupils, numbering 546, examined at the Pennsylvania Institution for the Deaf and Dumb, it will be noted how many of the diseases charged with causing the deaf-mutism are common to childhood or to early infancy:

| | |
|---|---|
| Scarlet fever | 78 |
| Cerebro-spinal meningitis | 44 |
| Meningitis | 39 |
| Measles | 19 |
| "Colds" | 15 |
| Convulsions | 12 |
| Traumatism | 14 |
| Otitis media | 11 |
| Typhoid fever | 8 |
| Spinal meningitis | 8 |
| Pneumonia | 4 |
| Catarrhal fever | 4 |
| Teething | 3 |
| "Malaria" | 3 |
| Black fever (?) | 3 |
| Cholera infantum | 3 |
| Diphtheria | 2 |
| Enteritis | 2 |
| Whooping-cough | 2 |
| Rachitis | 1 |
| Smallpox | 1 |
| Shock | 1 |
| Mumps | 1 |
| Bronchitis | 1 |
| Sunstroke | 1 |
| Croup | 1 |
| Eczema | 1 |
| Unrecorded | 8 |
| Unknown cause | 56 |
| "Deaf from birth" | 200 |

The cases marked as "deaf from birth," 200 in number, would doubtless be greatly lessened if the

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parents had been more accurate in their reports. Ignorance and want of intelligence may account for lack of more exact data.

A study of the conditions revealed by an examination of the ears of the 546 pupils is very suggestive of the results of destructive processes that may have been, and probably were, at first, limited to the sound-conducting apparatus. These lesions consist (1) of a sclerosing, non-suppurative process affecting, primarily, the sound-conducting apparatus, and resulting in immobilization of its various parts; (2) of extensive destruction of the tympanic contents by a suppurative process, in many cases still active, which has destroyed the middle ear, and, probably, portions of the inner ear also, while, in some instances, it has caused exfoliation of the ossicles, destruction of the mucous lining of the tympanum, denudation and necrosis of its bony walls, and the development of cholesteatoma. As one case not infrequently presented several lesions, it will be understood why the total number of cases reported exceeds the number of individuals examined.

| | |
|---|---|
| 1. Otitis media sclerotica, the drumheads being feebly movable | 191 |
| 2. Otitis media sclerotica, with adherent and immovable drumheads | 150 |
| 3. Engorgement of the manubrial vessels, the drumheads being pinkish, suggestive of an active catarrhal inflammation of the mucous membrane of the tympanum | 10 |
| 4. Calcareous deposits in the drumhead | 16 |
| 5. Perforation of the drumhead, with active suppuration | 46 |
| 6. Cicatrized perforations | 55 |
| 7. Impactions of cerumen | 57 |
| 8. Atresia of the auditory meatus | 2 |
| 9. Undeveloped auricles, with absence of the external auditory canal | 1 |
| 10. Foreign bodies in the external auditory canal | 7 |
| 11. Desquamative inflammation of the external auditory canal | 4 |
| 12. Drumheads appearing normal | 51 |

It will appear from this list that the great majority of these conditions suggest a comparatively slow but destructive process, either with or without suppuration, tending to cause sclerosis by fibrous or bony changes within the sound-conducting apparatus. In other words, there are few of these conditions that might not have yielded to judicious treatment employed in the early stages of the aural disease. At the same time we must not be misled into the error of supposing that each of these conditions noted represents the cause of the total deafness in every case in which it has been noted. The abnormalities of the posterior nares and pharynx in many of the pupils in this series indicate the possibility that middle-ear sclerosis may have developed gradually, in some instances, as a result of such nasal and pharyngeal disease, subsequent to a destructive process within the sound-perceiving apparatus that had itself already destroyed the sense of hearing. The aural lesions noted, however, cannot be disregarded, even considering this possibility.

The ages at which deafness is stated to have developed is of considerable interest:

| | |
|---|---|
| At birth | 200 |
| Under one year old | 48 |
| From one to two years old | 84 |
| From two to three years old | 62 |
| From three to four years old | 56 |
| From five years old and over | 55 |
| Uncertain | 41 |

I have already referred to the uncertainty of a diagnosis of deafness at birth, while deafness sufficient to cause failure in acquiring speech may not be noticed until the second year of childhood. Considering this fact, and considering, also, the character and chronicity of the aural diseases suggested by the lesions observed in pupils whose deafness is dated from birth to the second year of childhood, I feel safe in grouping these periods together, making 332 pupils out of the total, 546, whose aural disease developed in the years before the rudiments of speech are acquired. At this early age the child may be the victim, as well as the ward, of its care-takers. It can but imperfectly call their attention to many grave symptoms, and its feeble efforts at so doing may be unnoticed or ignored. We must exclude from this number the instances in which, from the personal and family history, as well as from the objective symptoms, it is reasonable to believe that deaf-mutism was indeed congenital. I do not feel that our tests, at present, enable me to give the number of this latter class of pupils with any degree of certainty. The indications, as judged from the conditions found in the ears of the entire series of 546 pupils, favor the idea of deafness developed subsequent to birth, and with otitis media, resulting from many different processes, as a direct cause.

Consanguinity of parents has been found by observers to be one of the causes of deaf-mutism. In thirty-one instances among our series of 546 pupils, the parents were stated to be blood-relations. This is not a large percentage, yet it can scarcely be passed by unnoticed. The influence exerted by consanguinity of parents as a causative element in producing deaf-mutism in their children is a subject involved in much obscurity. Where others have failed in explanation, I do not even attempt to do better. It must be commonly noted, however, by all physicians that blood-relationship in parents whose family has a strong predisposition to certain diseases of the pulmonary or nervous system, or to syphilis in its varying degrees of activity, is prone to result in the birth of children presenting many abnormalities of anatomic structure and physiologic function. In such weaklings the structures of



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the ear are certainly no more proof against divergence from the normal than are the parts of the cerebro-spinal tract or the lymphatic system. Even in robust subjects, the tissues of the ear yield readily to inflammation; much more readily must they yield in these strumous, feebly recuperating children of the class to which I refer.

It is a question if the blood-relationship of absolutely robust parents, members of a sound, healthy family, would have a sinister influence upon the physical health of their children or be in any way a factor in producing deaf-mutism. The exaggeration of vicious physical defects, or of a tendency to grave disease by the intermarriage of unhealthy relatives is certainly a very potent factor in causing deaf-mutism. A tendency to aural disease, or to catarrhal inflammation of the upper respiratory tract and ear, seems to be not uncommon in the families of deaf mutes. One-fifth of the entire series of pupils studied belonged to families having other deaf mutes among their members. In fifteen instances the parents were themselves deaf mutes. In 123 instances other children of the same family, cousins, aunts, or uncles, were partially or totally deaf or were also mutes.

Among our series of cases are a few very startling instances of the general distribution of deaf-mutism through a family. In these an entire family may form, as it were, a community of deaf mutes. The existence of deaf-mutism among the near relatives of about one-fifth of the pupils in our series sufficiently indicates that a tendency to destructive diseases within the ear is common to certain families. In such instances it would appear that there must exist some inherent weakness, by reason of which the tissues fail to resist the influences of disease to a greater degree than is the case with more nearly normal subjects. The nature of such physical taint can scarcely be analyzed. It is probably very multiform in character, and may arise from any conditions that have made a deep impress upon the vital centers that control nutrition and growth. Syphilis, extreme alcoholism and debauchery, years of great poverty, with mental and physical suffering upon the part of a parental pair, may account for a progeny of defective men and women, among whom deaf-mutism claims a few victims, while struma, pulmonary tuberculosis, locomotor ataxia, rheumatoid arthritis, idiocy, epilepsy, and insanity may have a greater number of subjects. In other words, deaf-mutism is only one of the phases of physical degeneration that may appear in members of a physically degenerate race. It is to such individuals that we may look with reason for instances of true congenital deaf-mutism, especially if taints of disease are concentrated by the intermarriage of members of such stock.

The lessons to be learned from these statistics, and those of other observers, bear relation mainly to the prevention of deafness in infancy and early childhood. We have seen that, excluding the unfortunate victims of inherited weakness and disease, to whom the congenital deaf mutes probably belong as a class, we have large groups of individuals whose total deafness (and resulting mutism) has developed at an early age, and was apparently of such nature in the beginning as to have allowed of cure had the aural conditions been recognized in time and treated judiciously.

The best methods of treatment are made manifest when we note the changes within the fauces and posterior nares of deaf-mute pupils. This ground has been gone over quite thoroughly by several observers, including myself, and it is not necessary to repeat the details. Suffice it to say that the investigations of observers who have given attention to the upper respiratory tract and ears of deaf mutes show that hypertrophied and diseased tonsils and hypertrophy of the lymphoid tissue within the post-nasal space are exceedingly common conditions. We know how commonly they exist in children whose hearing is still normal, and how intimately they are associated with catarrh of the middle ear.

Such conditions, causing mouth-breathing, want of drainage of the excessive mucous or muco-purulent discharge resulting from the attendant catarrhal rhinitis, causing also pressure upon or closure of the Eustachian tubes, must be removed and the parts rendered as nearly normal as possible. Such measures are of special importance in children whose family history indicates a tendency upon the part of their parents or other relatives to contract aural diseases, with the development of grave deafness. Otitis media, as a complication arising during the course of any illness in early childhood, requires early diagnosis and careful after-treatment. With the relief of the acute symptoms and the distressing pain, the treatment does not end. An uncared-for, acute, non-syphilitic inflammation may drift on into a slow, progressive, sclerosing process, binding the mobile parts of the middle ear in fibrous or bony union, and extending onward into the labyrinth, while an acute suppuration, with rupture of the drumhead, may continue until a chronic otorrhea has been established, with all its attendant dangers to the hearing-power, to the health, and even to the life of the child.

The strange trust in time and circumstance, or, we might say, in fate, that expresses itself in the belief that otorrhea must not be cured, that aural symptoms will be "outgrown," that otitis media in subacute form is a natural aftermath of measles and scarlatina, and that some supernatural influence that brought it about will also lead to its cure while we look on, is not a rational trust in Providence; nor can the doctor safely congratulate himself that the "con-

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founded ear-trouble" is, for him as well as for his patient, at an end when "the gathering in the head" has broken. With the general practitioner rest the care and responsibility for the preventive treatment during the illnesses of early childhood. He should be on the lookout for aural symptoms; should know the simple means at hand for their treatment, rather than have recourse to olive-oil, almond-oil, Harlem-oil, catfish-oil, kerosene-oil, all served hot or cold, with or without laudanum, as the child's grandmother may desire. A plug of raw onion need not be wedged into the affected ear, and yet the doctor may do his duty. The teachings of the professor of aural and rhino-laryngeal diseases, now, after many years of stupid opposition, a recognized member of the faculties of many of our medical schools, will tell of better things, and the physician in any city or large town can call an aural surgeon to his aid if the simpler methods fail him.

## THE EARLY RECOGNITION AND THE CLIMATIC TREATMENT OF PULMONARY TUBERCULOSIS.[1]

BY H. B. MOORE, M.D.,
OF COLORADO SPRINGS, COL.

EACH year's added experience with the high-altitude treatment of pulmonary tuberculosis impresses me freshly with the idea that certain very elementary facts relating to this very valuable therapeutic method, although often detailed by interested students of the subject, are constantly lost sight of by physicians prescribing this mode of treatment. The most important of these relates to an early recognition of the true nature of the case, so that the altitude-treatment may be instituted at once, and to the desirability of a more or less prolonged residence at the high altitude. Disregard of reasonable forethought in these particulars, more especially the first point, leads to great disappointment on the part of patients and friends and brings undeserved disrepute upon the treatment. I am willing to admit that some of the blame for this should rest upon the shoulders of too enthusiastic admirers. A goodly portion of it, however, belongs properly to that large body of practitioners who no sooner read of a new cure than they proceed to try it indiscriminately upon every case of the malady coming under their observation.

What is true of other diseases and their medical treatment is also true of the climatic therapeutics of pulmonary tuberculosis. It is far from wise to send every such case to Colorado to try the high-altitude treatment. The prospect for an arrest or cure of this disease diminishes very rapidly with its advance, and what has been a most favorable case may soon become inappropriate for this climate. Prophylaxis is always better than cure, and the family physician, seeing a rapidly growing boy or girl with imperfect chest-development, in a family predisposed to tuberculosis, can often avert a catastrophe by sending the child to a high altitude. The outdoor life, sunshine, and rarefied air of these regions are the most rational and perfect preventives of which one can conceive. Such cases are common in the experience of all physicians, and a practical recognition of the truth of this statement will lead to most gratifying results.

When too late for prophylaxis, and the disease is actually in progress, it seems to me (and my experience in this line has been such as to create strong convictions on the subject) almost criminal to keep the patient at home trying cough-medicines, creosote, guaiacol, cod-liver oil, hypophosphites, etc., during that valuable time, often so short, when climatic treatment is really capable of rendering radical assistance in the struggle with the invading enemy; but, alas, often, one might say usually, the patient is kept at home until the vital powers are weakened by advanced disease, and then, finally, it is decided to send the patient somewhere for his health. Is this reasonable, and can anyone who has the slightest grasp of the subject imagine, for an instant, that any climate will materially help a considerable percentage of cases of this kind? The system is already poisoned with the products of suppuration, and each day finds the cells less able to cope successfully with the already existing disease-area, to say nothing of its spread. This phlegmatic conception and management of tuberculosis is not rational and can never succeed.

One must have a sharp, clear-cut appreciation of the fact that a great danger menaces every individual whose tissues have become the site of the slightest degree of this form of bacterial invasion, and that, although some subjects are found to possess a remarkable degree of tolerance for the disease, as a rule the existence of any considerable amount of tuberculous tissue in the lungs constitutes a handicap too great for Nature to oppose successfully.

One error probably oftener fallen into than any other, even by physicians, is the idea that a person who looks well, or fairly so, cannot have tuberculosis. They cannot harmonize the appearance of an apparently healthy person before them with their conception of the pale and wan tuberculous patient, and forget that tuberculosis is an infective disease, which, like other diseases, has a beginning as well as an end, and if the symptoms are suspicious they think their science is at fault and call the disease "bronchitis" or a "cold that lingers," instead of by its right name. It would be interesting to know when, in the opinion of a large number of our professional brethren, these ailments ceased and

[1] Read before meeting of the American Climatological Association, Hot Springs, Va., June 13, 1895.

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actual tuberculosis began. I have had the misfortune to see large numbers of self-deceived, or doctor-deceived, human beings with tuberculous cavities, hectic fever, etc., arrive in Colorado Springs as cases of "bronchitis," "protracted cold," etc., and die in due time. On the other hand, it is a real satisfaction to examine some of the patients sent to Colorado by men thoroughly conversant with the subject, who make an early diagnosis and act on it at once. As a case in point, of which I am glad to say there are many, that of a young man, already becoming well known in our own profession, comes to mind. He had been an athlete in college, and on arrival in Colorado Springs was a picture of healthy vigor, broad, full-chested, and with a good, healthy color; yet a little suspicious cough existed and examination of the chest revealed beginning slight trouble at an apex, and the sputum-examination showed quite numerous tubercle-bacilli.

Cases in which the tuberculous infection is discovered early, and there is scarcely more than a little infiltration at the seat of invasion, are ideal, and may be taken as models of what we should strive after. Often Nature comes to our aid and declares, by means of a small hemorrhage or a slight spitting of blood, that tuberculous invasion has occurred at some little point in a person who has not previously coughed or been unwell in any way. Such an occurrence, although very alarming to the patient, is really a most fortunate one if properly interpreted and acted upon by the physician. Very often, however, the doctor discovers some point in the throat (usually) or the bronchial tubes the seat of alleged congestion, which he assures the patient caused the bleeding, and encourages the latter not to be alarmed, and so the probably valuable significance of the warning is lost and not thought of again until its repetition, or warnings of another character throw unpleasant light on the subject.

It may be asked with propriety whether the very early cases are the only ones that it is wise to send to a high altitude, and whether conditions so efficacious in prophylaxis and in the early stage of the developed disease are without efficacy in cases that are further advanced on first seeking advice as to the advisability of a change of climate. The reply to this question would be that the high-altitude treatment is the treatment suited especially to the earlier manifestations of the disease, the subjects of which still retain a large amount of their accustomed vigor and are able to avail themselves fully of the advantages of outdoor life in mountainous climates, which, from the very nature of things, are not very equable and which require a considerable amount of hardiness to withstand temperature-changes readily perceived by delicate anemics and subjects of hectic fever. At the same time every physician with experience in elevated regions can recall many cases presenting relatively extensive areas of disease in subjects possessing a considerable degree of tolerance for the disease and free from fever, who thrive in these regions and live many years.

Actual cure, however, is rare in these cases, the disease being merely arrested and liable to begin afresh on return to damp, sea-level climates. A very extensive area of even inactive disease would constitute a decided contra-indication to the high-altitude treatment, as a considerable amount of good healthy breathing-space is necessary for a patient to obtain the requisite amount of oxygen in a rarefied atmosphere. It is rarely wise to send active febrile cases advanced beyond the first stage to a high altitude. The deeper breathing required and the exciting character of the climate are very likely to promote destruction of existing consolidation and increase fever. Many such cases are seen in Colorado, in which, so far from being aided, the end is undoubtedly hastened.

As regards the other point to which I wish to call particular attention, viz., the necessity of a more or less prolonged residence at high altitudes, it is a serious error to give a patient going to Colorado on account of tuberculosis the idea that he is simply to go there for "two or three months," or "to spend the winter." It is very rarely that expectations of this sort can lead to anything but disappointment, as the disease is of such an essentially chronic character that this length of time is scarcely more than sufficient to furnish an idea as to the probable efficacy of the climate in an individual case.

Right here arises a question that it is often difficult to answer, viz., when is a patient cured of pulmonary tuberculosis and when is the disease only arrested and completely inactive? and yet it is, to the last degree, important for the patient to have this question answered correctly if he wants to return home. Some might say that a case may be looked upon as cured when the cough and expectoration have ceased entirely, when râles have disappeared from the chest, and the weight and general bodily functions have become normal; but it is a matter of every-day experience that under such conditions the patient frequently again begins to expectorate bacilli-laden sputa and to exhibit all the symptoms of renewed activity, showing that the disease was not cured and that the tissues had constantly contained live bacilli and larger or smaller areas of tubercle ready to soften at the proper time. It seems, therefore, as a rule, much wiser for the physician at home to be very conservative upon this point and to instil into the patient's mind, from the first, the idea that the contemplated change of climate, if found on trial to meet the patient's needs, must be a long and perhaps permanent one. If the patient hears this for the first time from his

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new physician after leaving home, he is naturally surprised at the lack of accord between this advice and what he had been led to believe previously, and feels home-sick and unprepared for so radical a change in his plans.

The desirability of the change of climate being very long or permanent is especially manifest when the patient is right in the midst of what might be called the most vulnerable age; when physique and family tendencies all indicate a subject of pronounced susceptibilities. Under these circumstances a premature return home after arrest or cure (?) might lead to a fatal relapse. Colorado Springs has to-day hundreds of citizens who have lived here for years with a good practical degree of health, enjoying their share of the activities and pleasures of life, and yet they are not cured of their tuberculosis and could not return to their former homes with safety. Many others have been completely cured and could live anywhere, but remain here from choice and the growth of local interests.

With respect to this point of prolonged residence our American high-altitudes in Colorado possess most conspicuous advantages over high-altitude resorts abroad, like Davos Platz, St. Moritz, etc., which are purely and simply health-resorts, offering no opportunities for occupation to those who need it and having no permanent society or home-life. In short, a young tuberculous person who has been sent sufficiently early in the disease to Colorado soon finds that he has not been consigned to a health-resort for life, but that he has simply changed his residence to another portion of the country filled with communities with many attractions, where work and a career still await him. It must not be inferred from these statements that Colorado has more positions than people to fill them or that it is especially easy to get remunerative employment, for such is not the case. On the contrary, the unemployed poor are found here as everywhere; but it is meant that talent and ability in all lines can find scope for their exercise here as promising as elsewhere, now, and with an encouraging prospect for future growth, often absent in the Eastern States. The lot of the very poor, who are at the same time ill, is a hard one anywhere, and must remain so until means are devised by the State or by individuals to relieve this most distressing form of need.

## PENETRATING WOUNDS OF THE EYEBALL.[1]

BY CASEY A. WOOD, M.D.,
OF CHICAGO.

THE responsibility assumed by the surgeon who undertakes the care of an eye whose envelops have been penetrated or ruptured is greatly increased by the fact that not only the vision of the injured eye, but that of the second eye may be at stake. The dreadful possibility of sympathetic or migratory ophthalmia, as it is more properly called, should always be borne in mind. This disease runs such a chronic and painful course, and is so disastrous in its effects, that when once encountered it is never forgotten. The unfortunate subject of it must wait during long weary months of pain and semi-blindness before his medical attendant can assure him either that he will eventually retain some vision in the uninjured eye, or that the injured eye, as sometimes happens, may be the more useful organ. It becomes, indeed, a question as to how long the emigrated micro-organisms, which are the essential agents in producing the lesions, will continue to multiply and poison the delicate structures within the second eye.

It is not my purpose to enter upon a discussion of certain theories respecting the pathology of ophthalmia migratoria, but rather to indicate, as well as I can, some of the principles commonly regarded in dealing with certain ocular injuries, and to illustrate these with some cases that have come under my own observation.

First of all, ocular traumatisms may be empirically, and, I think, usefully and practically, divided into three classes: (1st) those that are serious or not, from the standpoint of sight only, in which we are mostly concerned in asking whether or not the patient is likely to have useful vision in the injured organ; (2d) those that threaten the integrity of the second eye, quite apart from the fate of the injured eye, whose vision may at the time be fairly useful; here the eventual vision of the injured eye must be subordinated to the protection of the fellow-organ; (3d) those cases, probably the most numerous, in which sight is destroyed in the injured eye, and anxiety may be felt in respect to the vision of the other eye.

I wish first of all to report the histories of three cases that fairly belong to the first class:

In the summer of 1890 I was called in consultation with Dr. Greenfield, of Chicago, to see a young man who, in a drunken affray, had been stabbed in the left eye. The point of the knife had entered the cornea at its scleral margin on one side, had cut into the iris and lens, and had emerged at about a corresponding point on the opposite corneal border. The torn iris, with pieces of lens-matter, presented in the wound, the shallow anterior chamber being filled with blood. We decided to try to save the eye; thoroughly irrigated the sac with 1:5000 mercuric chlorid in a saturated solution of boric acid, carefully removed all the presenting lens-matter, blood, etc.; applied an antiseptic bandage; and were rewarded with having the corneal wound heal promptly and smoothly. There remained several posterior and anterior synechiæ, it is true,

[1] Read before the Illinois State Medical Society, May, 1895.

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and the vision did not amount to much more than finger-counting, but the organ, even in this state, was undoubtedly better than an artificial eye.

Another case was even more satisfactory:

A child, aged four years, in the summer of 1892 fell from his chair while eating at table, and in doing so knocked down a glass bottle standing at his side. A piece of the broken glass cut through the upper lid and penetrated the sclerotic at about the equator, making a jagged wound about a centimeter long. The eye was carefully cleansed, and under chloroform a projecting bead of vitreous was snipped off; the edges of the conjunctival wound were carefully sutured, the lesion of the lid was looked after, and a protective bandage applied. The wound healed nicely and there was no symblepharon. To-day the patient can read fine print and has nearly normal distant vision with the injured eye. There is, of course, a peripheral defect in the visual field, and with the ophthalmoscope some vitreous opacities may be made out, as well as the site of the injury to the choroid and retina, which is marked by a mass of pigment.

Dr. Cory referred to me last March the following case:

A boy, aged eleven years, was hit in the left eye with a splinter of glass from a window through which a stone had been thrown. I saw him on the morning following the accident. He did not complain of pain, and there was very little blood on the bandage that covered the eye. The cornea, iris, and lens were the seat of an irregularly horizontal wound. The sclero-corneal junction was not affected. There was prolapse of iris into but not through the corneal incision. The lens had come forward into the empty anterior chamber: V. L. = p. l. Treatment consisted in careful antisepsis and asepsis, and the use of an ointment of atropin. The result was quite gratifying. The corneal wound healed very rapidly; there was no incarceration of the iris; and the lens underwent almost total absorption. There never was more than a slight pericorneal injection.

In none of these cases has there developed any sign of sympathetic ophthalmia.

As examples of the second class of cases, I shall also give, very briefly, three histories:

A girl, aged five years, while playing with a pair of scissors, stabbed herself in the right eye with one of the blades. The wound was well within the sclera, near the corneal margin. Dr. E. L. Holmes, who was first consulted, very properly advised excision of the globe, although for several weeks after the injury there was considerable vision in the eye. The friends of the patient refused to have the operation performed until it was too late. I saw the case more than a year after the accident, when the distracted parents were carrying the little girl from oculist to oculist, in the hope of getting relief. She had perception of light in the second eye, which, like the first, had been destroyed by a septic iridocyclitis. The injured eye had undergone atrophy and was perfectly sightless.

A year ago last February a Polish Jew, working in a machine-shop, was sent to me for an injury inflicted by a piece of steel that had entered the front of his eye at a point corresponding to the ciliary body, had passed behind the lens and vitreous, and had lodged in the posterior wall of the globe or had penetrated the ocular coats and escaped into the orbit, I am not in a position to say which. There was no marked disturbance of vision (V. = 2/7 and J. IV) when I saw the man a few days after the accident, but the eye was tender and injected, and there had been some intraocular bleeding. Here was a man who could ill afford to risk anything or even to remain from work for any great length of time. I accordingly explained to him, to his employers, and to his rabbi the dangerous character of the injury, but he steadfastly declined operation. He left me, and I heard afterward that he became blind in both eyes.

A young man, while chipping steel, in August, 1892, was hit in the right eye with a flying fragment. The missile penetrated the cornea, iris, and lens, and its ultimate destination could not be determined owing to the traumatic cataract that followed. I removed most of the latter by a corneal incision and cut through, with a DeWecker's scissors, the tough membrane that remained, and was finally able to inspect the back part of the eye. The vitreous was cloudy and I could barely see the fundus. However, with a glass the patient had V. of 1/5, and I determined to try to preserve the eye, although symptoms of sympathetic irritation (lacrymation, photophobia, and inability to read) were occasionally present. Under a general anesthetic the globe was pierced at its lower equatorial aspect with a Graefe knife and the point of a Hirschberg electro-magnet introduced through the wound into the vitreous. After some careful manipulation I was successful in fishing out an irregularly shaped piece of steel. The man made a good recovery; both eyes became comfortable, and vision improved, so that he was able to work with ease. Within a year, however, he began to complain of his old symptoms in the better eye, and although he had nothing that to my mind justified excision of the injured eye, he saw another oculist, who, I understand, removed it.

I am not prepared to say that this was not the wisest course to pursue, as workingmen cannot afford to give themselves the continued rest and care that should follow these electro-magnetic operations.

An example, and I shall give but one, of what I have termed the third class of ocular injuries, is the following:

A man, aged forty-five years, consulted me in June, 1891, for watering of his left eye, with general discomfort. He thought his reading-glasses needed changing. The eye complained of was somewhat injected, but not tender. Both distant and near vision were normal. The right eye was sightless, the tension was + 1, and the patient flinched when the globe was slightly pressed upon. There was some ciliary injection. The man said that lately the eye was occasionally tender and

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sometimes got red like the other. Ten years before he had been hit in the left eye with a chip of steel that had penetrated the front of the eye, but had been extracted by a fellow-workman. After that he could not see out of it. There was a scar on the cornea, but nothing could be seen in the iris, except that it was of a dirty-brown color, while that of the sound eye was blue. There were posterior synechiæ and a whitish cataract. I enucleated the eye at once, and found a flattened piece of eroded and rusty steel 4 mm. long and 1 mm. wide, like the pointed extremity of a needle, imbedded in a brownish matrix of thickened vitreous, and lying close to the retina at the inferior aspect of the globe. The surrounding retina and vitreous were evidently stained with iron-rust. The man made a good recovery and has had no trouble since.

To return to the classification with which I started and in conclusion of this paper, I may say that my treatment of such cases may be summed up as follows: The eye is never to be enucleated or eviscerated in injuries of the first class; it is to be closely watched in all examples of the second class, and to be removed unless both eyes become and remain quiet. Lastly, injured eyes of the third class should always be removed.

As an aid to prognosis and treatment, I would suggest the following rules:

1. As long as the wound heals without difficulty, and no sympathetic irritation exists, I would treat with rest and antiseptics, and would not remove any eye whose injury is confined to the cornea, iris, and lens.

2. I would not enucleate an eye containing a foreign body when the injury was confined to these tissues and the foreign body could be removed.

3. I would not remove an eye containing a foreign body if there were no injury in the ciliary region, and the missile had passed through the posterior wall of the globe.

4. I would not immediately excise an eye injured by small shot (which are usually aseptic missiles), even if the wound were in the ciliary region, provided the patient could be occasionally seen by an oculist.

5. I would always excise an eye that contains a foreign body that could not be removed.

6. I would excise an eye in which the ciliary body had been injured, even if the sight were not much affected thereby. The only exceptions I would make to this rule are small gunshot-wounds, cases in which the second eye is useless or had been removed, and those instances in which there is no continued uveitis of the injured eye, provided always that the patient could be frequently seen by an oculist. For the average man, however, excision or exenteration would be, by far, the safest procedure in the last instance. When loss of sight goes along with ciliary involvement there can be no argument in favor of retaining the eye.

7. When once ophthalmia migratoria has set in, it is wise to retain the injured eye, if there be any sight in it, as eventually it may be the better of the two.

8. It is safe and proper to remove all continually tender or inflamed eyes of adults whose vision has been lost from a penetrating wound in whatever region of the globe.

9. It is highly desirable to retain the eyeball in patients under twenty years of age, if it can be done with safety to the better eye, as earlier removal of the globe retards the growth and development of the corresponding orbit, and greatly alters and mars the facial expression.

## CLINICAL MEMORANDA.

### *SUDDEN DEATH FROM SHOCK DUE TO THE INTRA-UTERINE INJECTION OF A SOLUTION OF LEAD ACETATE TO INDUCE ABORTION.*[1]

BY PAUL J. BARCUS, M.D.,
OF CRAWFORDSVILLE, IND.

ON the afternoon of April 22, 1895, the dead body of Mrs. B. was found by a neighbor lying supine near a window on the floor of a bedroom in her residence. The dress was but slightly disarranged; the limbs were extended. Upon the floor, and quite near the body, were several vessels more or less filled. Among these was a teacup containing a powder and perhaps a half-ounce of liquid. There were lying near, also, a wire stilet and a bulb-syringe, with a linen catheter attached to it by means of a screw and thread. The contents of the cup were ascertained to be lead acetate, and there was some of the same solution in the syringe.

At the post-mortem examination, after making the usual median incision and grasping the fundus uteri, pressure would force from the vagina a fluid similar to that in the cup. None of the fluid could be found in the peritoneal cavity. On opening the uterus it was found to contain the product of a conception of about eight weeks' duration. The membranes were unruptured and the endometrium was not wounded.

The body presented the appearance of one having been in the enjoyment of perfect health. There was a history of good health—no heart-disease, no disease of any kind, so far as could be ascertained, to account for the sudden death. The woman had been talking to a neighbor at 11.36, and at 12.45 her dead body was found.

It was shown that the deceased had been in the habit of self-inducing abortions, and that she had successfully accomplished this no less than twelve or fifteen times. About five years ago a physician had attempted to produce an abortion for this woman by injecting pure tincture of iodin into the uterus. The injection was immediately followed by shock, from which the woman recovered, but which threatened for a time to terminate

[1] Read before the Indiana State Medical Society, June 10, 1895.

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fatally. About two years ago she induced another abortion herself, which was attended by severe uterine colic and great depression.

Death must have been sudden and unattended with any marked convulsive movements, or some of the vessels near the body would have been overturned. The fatal result was due to the injection, as was shown by the history, and was attributable to shock, as there were no wounds made by the catheter, rendering it possible for air or fluid to have been injected into uterine sinuses.

## A NEW METHOD FOR CORRECTING THE DEFORMITY OF PROMINENT AURICLES.

BY WESLEY W. BARKWELL, M.D., AND JAMES BECKETT, M.D.,
OF CHICAGO.

CASES of deformity of prominent auricles are so infrequently met with and less frequently operated upon that it might be of general interest to relate a case and mode of operation. There have been three methods described for this operation: One by Ely, in which an oval piece is taken out of the entire thickness of the pinna, including skin and cartilage; another by Monk, consisting of the removal of the skin alone from the back part of the ear; and the last by Keen, in which a large oval piece is taken from the skin of the back of the auricle and a V-shaped groove taken from the cartilage, but not cutting through the skin on the inner side. In a case in which we operated upon April 29th the cartilage was very thick and firm, and this condition might have been the reason for suggesting a slight difference in the mode of procedure from any of those already mentioned. After preparing the patient in the usual way, by washing the ears and the surrounding parts with soap and water, an antiseptic solution, and then alcohol, we proceeded to outline an elliptic space on the back of the ears. This space measured in length about one-and-one-quarter inches, and in the center its greatest breadth three-eighths of an inch. It was our desire to take out this elliptic space without cutting through the skin on the front of the ears, and also that there should not be a redundancy of skin in this part. The knife was entered at one corner of the ellipse and the lower side cut out first, so that what little hemorrhage there might be would occasion no concern during the cutting of the other side. As the knife was drawn down toward the widest part of the elliptic space care was taken to slope the instrument gradually sideways more and more until it reached that point, and then gradually straighten it as it neared the other corner of the ellipse. This was done in order to take as narrow a piece as possible out of the front side of the cartilage, thus leaving no redundancy of skin on that side. After inserting the sutures and drawing them, the apposition of the parts was so complete, without any apparent redundancy, folds, or tension on the fore part of the ear, that from a front view it would be almost impossible to detect any evidence of an operation.

428 SOUTH CALIFORNIA AVENUE.

***Dr. William C. Jarvis***, Professor of Diseases of the Throat in the University of the City of New York, died at Willet's Point, L. I., on July 30th.

# NEW DEVICE.

## A NEW AND SIMPLE METHOD BY WHICH CAUTERY-IRONS MAY BE ELECTRICALLY HEATED ALMOST INSTANTANEOUSLY.[1]

BY W. SCHEPPEGRELL, A.M., M.D.,
OF NEW ORLEANS, LA.;
ASSISTANT SURGEON EYE, EAR, NOSE, AND THROAT HOSPITAL; VICE-PRESIDENT NEW ORLEANS ELECTRIC SOCIETY, ETC.

WHILE at the World's Fair I was much interested by a new method of heating metals by electricity, the novelty consisting not only in the rapidity with which the metals were heated, but also in the peculiar method of applying electricity for this purpose. The metal, such as, for instance, a soldering-iron, was dipped into a bucket or jar containing a watery solution of borax and sodium carbonate, and in a few seconds became red-hot. A large, flat iron file, held in the solution, rapidly became white-hot, the heated metal standing out in brilliant contrast with the water; if the file was kept still longer in the solution it commenced to fuse rapidly.

A closer inspection showed that the bucket or jar was connected with the terminals of a 230-volt Edison current, the positive wire being attached to a plate of lead at the bottom of the jar, and the negative wire passing across the top of the jar. When used, the bar of metal was placed in contact with the negative wire, and the part to be heated was dipped into the solution, the heating process, as stated, taking place with remarkable rapidity.

It occurred to me that this method might be adapted to the heating of iron cauteries, which are still heated by the slow and cumbersome method of the charcoal-furnace or the blow-pipe oil-lamps. The heating of the ordinary platinum electro-cauteries leaves little to be desired, but this method is adapted only to the smaller cauteries, and cannot be used for the larger cautery-irons.

A series of experiments which I made with this method of heating cautery-irons has convinced me that it is not only simple and effective, but also quite economical. As a result of these experiments, I find that the average current required is 15 ampères at 230 volts, and the average time for heating the cauteries three seconds. The cost of each heating, as estimated for me by Mr. Coleman Reed, of the Louisiana Electric-Light Company, was about one-twelfth of a cent for one heating.

The apparatus is exceedingly simple. The vessel that I use is the jar of an ordinary bluestone battery, but any glass jar with a capacity of one or two quarts will answer the purpose. The jar is filled three-quarters with a solution of borax, 1 part; sodium carbonate, 10 parts; water, sufficient to make a density of 1.060.

A plate of lead, one inch wide, is coiled around the bottom of the jar, and to this is soldered the positive terminal. The negative wire is passed across the top of the jar, as shown in the accompanying illustration, and the apparatus is complete. The wires should connect with the Edison current-system of 230 volts, which is available in most cities in the United States and Europe. The ordinary cautery-irons may be used, the wooden or hard-rubber handles affording all the insulation that is

[1] Read before the Orleans Parish Medical Society, April, 1895.

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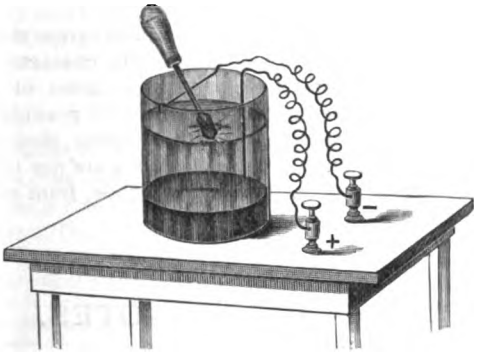
required for the hand. It will be noted that I first place the neck of the cautery in contact with the upper (negative) wire, then as the point or knob of the cautery touches the solution it immediately becomes red-hot, and, if left longer in the solution, white-hot. To one who has never seen this method used before, the metal becoming heated on being immersed in a watery solution, and showing its brilliant incandescence through the water, the effect is very astonishing.




When we investigate the cause of the heating effect the theory that it is due to the resistance of the metal, as in the ordinary platinum electro-cauteries, will not explain the effect in this case. Fifteen ampères at 230 volts for three seconds would certainly not heat this large cautery perceptibly; and if it were a question of the resistance of the metal, it would become heated at the neck, where the resistance is greater, instead of at the large, rounded part.

The passage of the current through the iron no doubt has a slight heating effect, but the intense heat generated is due to another cause. When the electric current is passed through the solution electrolysis is set up, oxygen being liberated from the lead plate (positive terminal) and hydrogen from the immersed instrument, which is in contact with the negative terminal. This thin layer of hydrogen has a very high resistance, and at once becomes intensely hot and communicates its heat to the metallic instrument. The great heat of the hydrogen causes it to combine with the oxygen of the air, and this combustion adds to the heat of the cautery.

In experimenting with various metals for this process I find that the ordinary cautery-irons, as sold by instrument-makers, will answer every purpose. If made of copper, however, a somewhat longer time is required to heat them, but they will retain their heat for a longer period of time.

While the cautery-irons belong to the domain of general surgery, still I have found it serviceable to keep certain ones on hand. Quite recently I found this method of heatiug a cautery-iron useful in controlling an alarming hemorrhage after tonsillotomy, which the Paquelin thermo-cautery had failed to control.

As most hospitals and offices are supplied with the Edison current for illuminating purposes, this apparatus may be introduced with but little expense. The advantages of the method are its simplicity, reliability, and economy.

3723 PENNSYLVANIA ST.

# MEDICAL PROGRESS.

***The Palliative Treatment of Jaundice due to Malignant Obstruction.***—RUSSELL (*Edinburgh Medical Journal*, July, 1895, p. 35) has reported a case of malignant disease of the pancreas in a woman eighty-five years old, with obstruction of the common bile-duct, occasioning intense jaundice, with profound symptoms of cholemia. A proposition to relieve the obstruction by operation was at first declined, and only consented to late in the disease when the conditions were most unfavorable. The patient lived only thirty hours after the operation, and post-mortem examination disclosed the existence of primary carcinoma of the head of the pancreas, without secondary involvement. The question is raised whether an operation for the relief of the misery and discomfort of a deepening cholemia is not so humane a procedure as tracheotomy for malignant laryngeal disease, as gastrostotomy for malignant esophageal stricture, or enterectomy or enterostomy for malignant intestinal obstruction. The advisability of operation would, of course, depend partly upon the possibility of making a diagnosis that could reasonably be regarded as accurate or complete. If the obstruction to the bile-duct were above the cystic duct, operative interference would be ineffectual, but with obstruction below that point draining the gall-bladder would remove the jaundice. Thus, a distended gall-bladder would indicate and warrant operation. If the gastric symptoms were not only prominent, but clearly attributable to gross involvement of the stomach, the removal of the jaundice would not give sufficient relief to warrant operation. If, on the other hand, the gastric symptoms appeared to be due rather to the jaundice than to a coarse lesion the relief of the jaundice would be followed by gastric relief. The presence of a duodenal lesion would not contraindicate operation. Even clear involvement of the liver would not necessarily be a contraindication so long as the distention of the gall-bladder showed that the hepatic duct was not blocked. The most perfect cases for operation would, of course, be those in which the lesion was confined to the head of the pancreas.

***Extirpation of the Spleen for Echinococcus-cyst.***—At a recent meeting of the Berlin Medical Society, HAHN (*Berliner klinische Wochenschrift*, 1895, No. 26, p. 576) reported the case of a woman, thirty-five years old, who presented a tumor as large as a child's head in the left hypochondrium, which had been noticed since the last labor, three months before. With the patient recumbent, the tumor extended upward to the left costal arch and downward into the hypogastric region, but not beyond the median line. Its surface was smooth, and its lower portion presented a sharp border, with an indentation. The tumor was but little sensitive and very freely movable. Distention of the bowel was followed by restriction of the limits of the mass. The patient had lost greatly in weight and strength, and desired to be relieved by operation. Heart, lungs, and kidneys presented no abnormality. A long incision extending an equal distance above and below the umbilicus disclosed a tumor in connection with the spleen, and provided with a pedicle of about the thickness of two fingers, constituted principally of vessels. The swelling conveyed a sense

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of fluctuation. The capsule was thin, bluish-black in color, and in places presented yellowish-white spots of the size of a pea. It was concluded that the formation was either a hemorrhagic cyst, an echinococcus-cyst, or a cysto-sarcoma of the spleen, and after mature deliberation its removal, with the spleen, was decided upon. Accordingly, the pedicle was doubly ligated in six or eight sections with fine silk, and the spleen and new-formation removed, the pedicle replaced, and the abdominal wound closed. There was no complication; the temperature scarcely rose above the normal; bodily weight was at first lost, but later considerably increased. The proportion of colorless to red blood-corpuscles on the day of operation was 1 to 160; in the succeeding days, 1 to 300; then 1 to 400; and four months after the operation, 1 to 600. No swelling of the thyroid gland or of the lymph-glands was observed, and also no pains in the bones.

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***Dysphagia due to Abnormal Arrangement of the Great Vessels.***—KELLOCK and BATTEN (*Lancet*, No. 3747, p. 1579) have reported the case of a healthy boy, two years and ten months old, who was severely choked while eating an apple, although nothing could be found in the larynx. The child was kept under observation for the night, but was dismissed quite well on the following morning. Nearly eight months later he was again hurriedly brought under observation with the history that he had suddenly choked while eating dinner. He was cyanosed and breathing with some difficulty. While awaiting treatment he became much worse and ceased to breathe altogether. The trachea was opened at once and artificial respiration performed for two-and-one-half hours, but without restoring breathing. Upon post-mortem examination a small blood-clot was found in the trachea, which had been opened by division of the fourth, fifth, and sixth rings. A large mass of granular-looking material (probably sausage) was found lying fairly loosely at the back of the pharynx, but it is uncertain whether or not it occluded the upper opening of the larynx. On dissecting the arteries arising from the aorta the following arrangement was found: There was no innominate artery; the two common carotids came off practically together, the left following the usual course, but the right crossing the trachea from the left side just above the sternal notch, to reach its usual position on the right side of the neck. The left subclavian came off from the arch of the aorta next, and followed a normal course; then came the right subclavian, arising from the descending part of the arch, and crossing obliquely behind the esophagus between this and the spine and behind the right scalenus anticus muscle to its usual situation at the root of the neck.

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***The Distinction of Syphilitic Neoplasms from Other Newgrowths.***—At the recent meeting of the German Medical Congress, ESMARCH (*Wiener medizinische Blätter*, 1895, No. 26, p. 413) dwelt upon the peculiarities of syphilitic neoplasms, of which he had recently seen some forty. The cases belonging in this category usually present other manifestations of past or present syphilis, or give a history of that disease in parents or brothers or sisters. All tumors developing in the voluntary muscles should be viewed with suspicion. These occur most commonly in the muscles that flex and extend the head, in the abdominal muscles, in those of the back and of the legs, and also in the tongue. Especially suspicious are those growths that recur at regular intervals after extirpation, and which may be dispersed by the administration of potassium iodid in large doses. Likewise those growths should be viewed with doubt that disappear after the internal administration of arsenic, and also after attacks of erysipelas or the injection of the toxins of that disease. The mode of growth is not distinctive, some attaining considerable size rapidly, particularly after traumatism, while others grow slowly; neither is the consistency of the growth characteristic. Anatomically, syphilitic tumors present areas of fatty degeneration in the midst of grayish-red granulation-tissue. In case of suppuration the tumor should be removed surgically. Some syphilomata are not clearly distinguishable, even with the microscope, from round-cell or spindle-cell sarcomata.

## THERAPEUTIC NOTES.

***The Treatment of Human Tuberculosis with the Blood-serum of Goats Inoculated with Tuberculin.***—At a recent meeting of the Société de Biologie, BOINET (*Compt. Rend. Hebdom. des Séances de la Soc. de Biologie*, 1895, No. 25, p. 543) related that he had found in a series of experiments that the blood-serum of goats previously inoculated with tuberculin had a controlling influence upon the development of human tuberculosis in guinea-pigs. Of a number of animals thus treated and subsequently inoculated with miliary tubercle the large majority resisted infection, a number of pregnant females even giving birth to healthy offspring. Upon the basis of these observations similar serum was next employed in the treatment of eight cases of tuberculosis in human beings. In three cases of slow progress, with dry cough or scanty expectoration, the results were favorable. In two cases in the second stage of the disease marked amelioration resulted. The treatment is thought to be of no avail in the advanced disease, associated with excavation, but rather in tuberculosis of slow course, with exacerbations, accompanied by fever, hemoptysis, night-sweats, and laryngeal complications.

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***The Treatment of Diphtheria with the Antitoxin.***—At a recent meeting of the Berlin Society for Internal Medicine, EULENBURG (*Deutsche medicinische Wochenschrift*, 1895, No. 29, p. 472) made a preliminary report of the results of a collective investigation as to the results of the treatment of diphtheria with the antitoxin. Of 10,240 cases, 5790 were treated with the antitoxin, with a mortality of 9.5 per cent., while 4450 were treated without the antitoxin, with a mortality of 14.7 per cent.

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SATURDAY, AUGUST 10, 1895.


## *RECENT SANITARY LEGISLATION IN PENNSYLVANIA.*

ALTHOUGH sufficient time has not elapsed for the publication of the official volume comprising the acts passed by the Pennsylvania Legislature at its session just closed, we are advised through the Department of Agriculture of the approval of two acts having significant relations to the food-supply of the State. All attempts to secure an act controlling the milk-supply along the lines that have for a number of years been followed by the Board of Health of this city failed, partly from the organized resistance of the milk-dealers and partly from the unwillingness of the farmer-contingent to accept regulations that seem to be based upon purely theoretic views. By whatever motives of self-interest either of the opposing parties may have been influenced, it would probably have been more in the interest of the community at large if the Philadelphia officials had conceded something to the practical experience of the producers and purveyors of milk. The farmer-element is too strong in almost every State in this Union to permit the passage of laws that appear as even slightly opposed to its interests.

Some legislation, however, was secured concerning the milk-supply, namely, the passage of a brief act forbidding the addition of preservatives to milk. The terms of the act are comprehensive enough to exclude almost any article likely to be used for the purpose. It is generally known to sanitary chemists that the preservatives most commonly employed are boric acid and borax, with occasionally salicylic acid. There is much dispute as to the harmfulness of these ingredients, but as the law is specific in forbidding them, and as it is now pretty clearly established by numerous decisions of the United States Supreme Court that the right to declare a particular article injurious to the public health is reserved to the individual States in accordance with their laws, there is little doubt that the act can be used to prevent the use of these materials. That they are extensively employed, especially in the summer season, is well known. Many of them are sold as proprietary articles, without notice as to their composition, with more or less ingeniously worded certificates, from irresponsible chemists, as to harmlessness, and are used recklessly by the milk-dealers, of whom it may be said that while they are undoubtedly to blame for using anything that is foreign to the milk, they may in part be excused by the dependence which they are induced to place upon the indorsements furnished by the manufacturers of the preservatives.

In addition, however, to this specific act, a general food-law is now in operation, the enforcement of which is committed to the Department of Agriculture, and not, as might have been expected, to the State Board of Health. This somewhat unusual arrangement has arisen from the fact that two years ago the Legislature created the office of Dairy and Food Commissioner as an agent of the State Board of Agriculture for the enforcement of the oleomargarin-law. At the last session a Department of Agriculture was created, and the Dairy and Food Commissioner brought into that department. His powers were extended so as to include all the duties of supervising food-adulteration. The act is brief, and does not include specifically alcoholic beverages or drugs. In its phraseology it follows acts that have been passed elsewhere, and it is in slight conflict in one respect with the oleomargarin-act, inasmuch as the latter is absolutely prohibitory, and does not require the prosecuting officer to show a knowledge of the nature of the material sold, while in the recent act the prohibition applies generally to all kinds of food, and permits the sale of an article for what it is. Some interesting legal sparring may

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be expected when prosecutions begin under this law.

All efforts in the direction of the prevention of food-adulteration must be regarded as merely experimental. Not only are laws passed with too little knowledge of the facts to secure a practical protection, but the interest of many manufacturing establishments, employing large capital, and capable of exerting pressure upon legislators, will be arrayed against many phases of restriction. Then it must be borne in mind that the newspaper press of the country is so completely subsidized by advertisers that no expression of public opinion contrary to the interests of such advertisers is to be expected. Acts, therefore, intended to secure publicity as to the composition of proprietary articles meet with the denunciation of all leading newspapers the moment the legislative situation becomes such as to suggest to the manufacturers of those remedies the necessity of opposition.

Legislation has also been enacted in Pennsylvania providing for the inspection of cattle, mainly suggested by the dangers of tuberculosis. We shall probably derive more substantial benefit from this source than from the food-laws noted.

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## THE STATUS OF SURGICAL TREATMENT IN PUERPERAL SEPTICEMIA.

THE treatment of puerperal septicemia has hitherto been palliative and expectant, both on account of the difficulty in localizing the infective process in given cases and from the elusive character of the symptoms. Although there are instances in which surgical treatment is demanded, we still have to deal with cases that are entirely beyond the reach of surgery. In the first class either the point of origin of the infection or the area made continuous with it by means of the lymphatic circulation remains the seat of the developed process; in the second class the toxemic element influences the aspect of the disease.

There are two sources of error to be guarded against in the management of cases of puerperal septicemia amenable to surgical treatment: First, the difficulty in determining the seat of infection—whether it be extra-peritoneal or intra-peritoneal, the chance of drainage outward in the first instance and the necessity of either partial or total extirpation of the pelvic organs in the second depending upon the accuracy with which we differentiate the seat of infection; second, the choice of time for operation—whether in the early absorptive period of the disease or in the developed stage.

Pathologically, the form of infection in these cases depends upon the character of the infecting elements and upon the degree of local resistance. If we were able to establish the relation between the symptoms and the pathologic process in each case we should be enabled to differentiate between those cases amenable to surgical treatment and those beyond its aid. In this, however, the difficulty in treatment lies.

The disease in its development assumes one of three forms, considered anatomically: First, a local infection, the result of necrotic endometritis extending by lymphatic involvement to the pelvic connective tissue. Second, a localized suppurative process terminating in either a phlegmon of the broad ligament or an ovarian abscess. Third, a general infection, expressed locally by a diffuse peritonitis, the res ult of active absorption by means of the lymphatics of infective material from the original seat of infection, and generally by the symptoms dependent upon pyemia.

Surgery is applicable probably only to the second division of cases, and if we exclude curettage from the radical surgical procedures the field is extremely limited. Total extirpation of the uterus is recommended in puerperal parametritis with suppurative lymphangitis of the uterine tissue, and the class of cases in which this association appears might be included in the first division. In the last division of cases surgical treatment is inevitably fruitless.

Practically, the landmarks by which we are to choose our way are misleading. This is best illustrated by the character of the symptoms in acute septic toxemia (sapremia). In this form of the disease the physical signs, as well as the symptoms, may, on the one hand, point to a parametritis with uterine involvement, or on the other to a localized suppurative process, whereas the local process may be entirely subordina te to the general expression of the disease, so indistinctly do the diagnostic points present themselves. Every practical obstetrician must have encountered cases in which the signs of a local infectious process have been present, namely, local infiltration, intestinal paralysis, and fetid lochia, perhaps together with the pain of peritonitis and the irregular temperature of suppuration, and yet post mortem not a single local indication is to be found that would have warranted surgical interference.

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In view of these facts it seems fitting to enter a plea for the closer study of diagnosis in connection with puerperal septicemia. Skill in diagnosis will depend largely upon two factors—always excluding the essential ability for painstaking observation, characteristic of the scientifically qualified practitioner—first, upon the amount of practical experience to be counted among the resources of the diagnostician, and, secondly, the degree of general and special training he has received in the observation of symptoms.

As a rule, the men who are best able to operate are those who unfortunately are least able to separate mentally the operative from the non-operative cases, because they have usually met with only the former.

May not our reliance, therefore, upon surgery yield in some degree to an appreciation of the art of diagnosis, whether diagnostic acumen be the criterion of either obstetric or surgical skill?

## EDITORIAL COMMENTS.

***Trinity Church Tenements.***—In a report before us, just issued by the Corporation of Trinity Church, New York, an effort is made to refute the charges laid before the Tenement-house Reform Commission last December, reflecting seriously on the management of the property held by that church.

Mr. Frederick L. Hoffman, statistician, was engaged to study the death-rate and the causes of mortality among the population of the Trinity tenements, and his article forms the principal part of this report.

Several previously published letters are appended, and one written by the rector of the church contains these words: "As to model tenement-houses the corporation is not without experience. It has already erected ten such houses, not one of which has incurred the criticism of the committee; but not one of them is full, and, if filled, they would not net more than 4 or 5 per cent., and in fact have not netted more than 3 per cent." A few lines further on it is said that "the trustees do not feel that it is their duty to engage in enterprises which do not commend themselves to *business judgment.*" Here the whole matter rests. The world demands that a religious body, whose object is the furtherance of morality, shall conduct whatever it undertakes on ethical principles, no matter what the pecuniary consequences are, and when it ceases to do this it must submit to censure. A friend of Trinity in another letter published in the report reiterates the fact that Trinity conducts its *business* as *other business* is conducted, and that it is "a harsh judgment which insists that the work of removing old and (unsanitary) rookeries and constructing new buildings shall proceed faster than the interests of the corporation demand."

Which interests we ask? The business interests would never demand their removal, as the best-paying property is that which is the most unsanitary, namely, the hovels of the slums.

Mr. Hoffman's work shows a careful study of the records, but is open to several criticisms, which, if just, would invalidate his arguments that Trinity tenements are healthier than other houses in the same locality.

We agree with Mr. Hoffman that it is wrong to compare the death-rate of a group of individuals situated in one part of the city with the death-rate of the entire population; and also that it is not always fair to compare the health of one-thousand individuals with that of one-million, though living under similar conditions; but we would add that it is not proper to compare one set of tenements with another set, though situated on the same street, without analyzing the elements in the population of each. Thus, if negroes inhabit one row of houses and Jews another, other things being equal, the sanitary condition of the two tenements may be equally good, yet the death-rate would be much smaller among the Jews than even the general death-rate, while among the colored it would be much greater.

Another fact that Mr. Hoffman has ignored is the proportion of children living in Trinity tenements as compared with the proportion in other portions of the district. The greater the number of children under five years of age, in a given population, the greater the death-rate will be.

The methods made use of by Mr. Hoffman to prove that Trinity tenements are more sanitary than other houses in the same locality, namely Ward 8, District A, are as follows: First, he compares the death-rate of Trinity population for the year 1891 with that of the district for the same year, and finds a difference in favor of Trinity; but, as Mr. Hoffman states, the time-element is too limited, and so he makes use of other methods. Forty-one "selected tenements" are compared with eighty-three Trinity tenements for a period of two years, and again Trinity makes a favorable showing, although the specially selected tenements are not in the same locality. The third method used is the comparison between the mortality in Trinity tenements and the mortality of the district for a period of six years, although the periods are different, that for the tenements being from 1889 to 1894, and that for the district from 1885 to to 1890. When a small population is concerned some slight epidemic in one year might materially alter the mortality-rate.

In a table compiled by Mr. Hoffman, showing the causes of death in the tenements for the period 1889–94, the zymotic diseases are shown to be less prevalent than in the wards of the city at large, and from this he concludes that the charges of the Board of Health that the unsanitary condition of the Trinity tenements is the cause of an excessive death-rate cannot be substantiated.

That the property in question "is not so bad as it was painted" is probably proved by this private investigation, but it would have been more convincing if the analyses were more complete, and if a commission of disinterested persons had been invited to make the investigation.

The corporation has still to meet the charge that its tenements are not all that they should be. They may not be as unsanitary as they were reported to be, but *are they as healthy and as free from fault as they might be?*

Is Trinity corporation like so many individual philanthropists and churchmen, who preach morality on Sun-

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day and endow hospitals and schools, while in their business relations they are as grasping and unbrotherly as they possibly can be, and, when they are taken to task for their hypocrisy, respond that business principles are one thing and brotherly love principles something entirely different? Their employés are bought in the cheapest market and taken advantage of whenever possible. Property must yield 5 per cent. per annum, no matter who suffers.

The issuing of this report on the sanitary condition of Trinity Church tenements does not in the least satisfy the demands of public opinion, namely, that a professedly religious body should endeavor to conduct its business affairs on the same ethical basis as its spiritual affairs are conducted, and if it does not do so, then it deserves public censure.

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***Orthographic Ignorance and Medical Ability.***—There can be no question that men have shown ability to do good intellectual and social work of undoubted value to civilization who could not spell ten words correctly. It is said that there is in the United States Senate to-day a millionaire who was formerly the Mayor of his native village, and that in the town-records his signature to hundreds of documents exists with the official title "mare" (for *Mayor*), appended by himself. It needs only to be added that he was a good Mayor, and had at least good *horse*-sense, and is to-day a better legislator than most of his associates. Just as frankly may it be admitted that many a physician of the present, as of past generations, is unable to master the difficulties of English orthography.

But, and here's the rub, that day is either past or should be past. It is by everyone admitted, and by none more fully than by the combined good physician and poor speller, that without the preliminary education, evidenced at least by correct spelling of one's native language, the modern physician is now and henceforth not only handicapped, but utterly outclassed in the race of life. It is not that knowledge of spelling will make one the better physician, but the lack of that knowledge certainly guarantees other lacks that squarely debar from the higher education essential at this day. It has been said that without money, or a certain amount of it, one cannot get what money alone cannot buy, and it is much the same with preliminary education. In the orthographic ignorance of the recent graduate there is, moreover, a bit of hypocrisy to be exposed. Somebody is "uttering false paper," as the lawyers would say, or false sheepskins—or, in plain English, some one is lying. All of our medical colleges are pretending that their preliminary examinations are real and not tricky shams and frauds. What is the fact? Have genuine preliminary examinations been held in the cases of men who spell after the manner of those cited herewith? Nay, in their "final exams.," preparatory to graduating them, what was the condition of mind of their professorial examiners?

The following list of words is culled with exact spelling from the papers of those examined by the "Board of Medical Examiners, representing the State Medical Society of Pennsylvania," at its last examination. "Some of these gentlemen," writes the examiner, who kindly sends us the list, "were graduated this year by medical colleges in Philadelphia:"

Athromatous.
Adhear.
Allways.
Amaloid.
Apatite.
Apetite.
Accute.
Assleep.
Amediately.
Aeriated.
Alsow.
Breight.
Brane.
Be did (done).
Burried.
Boath.
Brite.
Currants (of air).
Choryza.
Corhiza.
Cystolic.
Crysis.
Caracteristic.
Clavical.
Consolodation.
Chillie (chilly).
Countinence.
Cronic.
Cricis.
Cealing.
Drosiness (drowsiness).
Doeing.
Draft (draught).
Dissease.
Dropsey.
Diastallic (diastolic).
Detale.
Dillated.
Extream.
Embarissed.
Exhaels.
Fatial (facial).
Faulse.
First strata.
Furnature.
Froothy.
Fillter.
Hyealin (casts).
Herd (heard).
Heigh (high).
Hedacke.
Indiscression.
Jerms.
Knapkins.
Klebs-Lefra (bacillus).
Clebs-Leffer.
Layety.
Lisis.
Liberaly.
Malays (malaise).
Manuburm (manubrium).
Murmer.
Matress.
Ment (meant).
Nassuae (nausea).
Oscultation.
Profalactic.
Phomates (fomites).
Purilent.
Posable (possible).
Possiable.
Phremitis (fremitus).
Phrematis ( " ).
Parencamo (parenchyma).
Prespiration.
Pereferal (peripheral).
Pacific (gravity).
Puffey.
Pacient.
Pail (pale).
Quarrentine.
Quarenteened.
Quarintine.
Rhals.
Rahls.
Rals.
Rhumatism.
Resoiver (reservoir).
Resivore ( " ).
Resivour ( " ).
Resinous (resonance).
Resonence.
Rubish.
Read (blood-corpuscles).
Sess-pool.
Sibylant.
Sheats (bed).
Sturnum.
Surs (sewers).
Suden (sudden).
Sudent ( " ).
Sleight (amount).
Streighten.
Snezing.
Sourse.
Sputem.
Sputtum.
Steralise.
Stich (pleuritic).
Swoolen.
Stomack.
Skinn.
Sower (sour).
Tare (apart).
Theraly (thoroughly).
Ulser.
Vessles (blood).
Vescles ( " ).
Virolent.
Woolen.
Wollen.
Yealds.

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***Nostrum-advertising in Medical Journals.***—The Medical Society of the State of Pennsylvania has sent out the following circular, to which we heartily subscribe:

*To Editors and Publishers of Medical Journals:*

As a committee appointed for that purpose we desire respectfully to call your attention to the following extracts from minutes showing the action taken by the Trustees of the American Medical Association and by

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the Medical Society of the State of Pennsylvania, respectively:

"BALTIMORE, MD., May, 1895.

"*Report of the Trustees of the American Medical Association.*

"During the year no advertisements of secret remedies have been accepted that were not accompanied by a formula, but to comply still further with what appears to be the desire of a large number of those interested in the highest success of the *Journal* the editor, with the termination of the present contracts, has been instructed *to accept no advertisements of medicinal preparations the proprietors of which do not give a formula containing the official or chemic name and quantity of each composing ingredient to be inserted as a part of the advertisement.*"

"CHAMBERSBURG, PA., May, 1895.

"*Resolved*, That the Medical Society of the State of Pennsylvania congratulates the American Medical Association upon the decision of the Trustees to exclude unethical advertisements from the *Journal* of the Association."

"*Resolved*, That a committee of three be appointed to communicate with the editors and publishers of medical journals in the United States, calling their attention to this action of the American Medical Association, and requesting them to accede to the wishes of the profession by adopting a similar rule."

Allow us also fraternally to state: That we believe that the best interests of medical men are coincident with scientific accuracy, so far as this can be obtained: That the practitioner of medicine should therefore know in all cases the character of the drug, and the formula of the preparation or chemic compound that he prescribes: That the use of a secret preparation, or nostrum, is undeniably unscientific, and cannot be intelligently defended: That hence the advertisement of such preparations by scientific journals is out of place; its effect being to promote quackery and discourage scientific prescribing: That we believe the exclusion of such advertisements will aid the circulation of medical journals, and give them a dignity and character not obtainable without such exclusion: That the hearty manner in which the action of the Trustees of the American Medical Association and that of the Medical Society of the State of Pennsylvania was received shows the very cordial indorsement by the profession of the policy here recommended. We, therefore, most earnestly, ask your careful attention to this subject, hoping and in behalf of this society requesting that you will adopt a similar rule to that of the Trustees of the American Medical Association.

Very respectfully yours,

S. S. TOWLER, M.D.,
Marienville, Pa.;
J. J. BUCHANAN, M.D.,
1924 Penn Ave., Pittsburg, Pa.;
C. H. THOMAS, M.D.,
1807 Chestnut St., Philadelphia, Pa.
*Special Committee.*

***Artificial Caffein.***—Another triumph for the laboratory has just been recorded in the synthetic manufacture of caffein. This is an important advance not only in itself, but also in its suggestion of future progress. The process requires as yet such an elaborate series of chemic operations as to make the cost of the product considerably above that of natural caffein. But only a mere simplification of the process is required to remedy this, and that is sure to come with perseverance and practice. This field has been a most tempting but barren one to the chemist for generations past. For a long time it seemed absolutely hopeless to attempt to rival protoplasm in its transforming and constructive powers. When at last the synthesis of urea was achieved, some fifteen years ago, it was hailed as a great triumph. Slowly but painfully one product after another has been achieved, but so far these have been mainly the results of excretory metabolism. A few months ago, however, the formation from inorganic materials of something seemingly identical with albumin was announced, and now such a complex and active body as caffein has been reached. It looks as if not merely a new field, but a new world of possibilities were opening up to us. No less an authority than M. Bertillon is most sanguine about the prospect, and declares that it is only a question of time—and a short time at that—when we shall be able to construct all of our food-materials directly out of the elements without the assistance of either plant or animal. At present, however, it is much simpler to throw a few seeds into the soil and let them work the miracle for us, and we seriously doubt whether, even if by straining to the utmost, we can imitate Nature's results, we can ever hope to attain to the ease, simplicity, and beauty of her processes. Bertillon's prediction, however, is certainly among the possibilities—and how it would delight our vegetarian and our "peace-principles" friends! There would then be no more excuse for slaughter of any sort, no more animal foods to heat our blood and excite us to deeds of violence. Plants may be grown for their beauty and animals for the pleasure of their companionship, and meat-eating will become as unnecessary as cannibalism has almost become. What a real millennium it would be! Not only could the lion lie down with the lamb, but the butcher with the kid. In that Utopia would the ghost of Malthus rise up to warn —or perhaps to enjoy?

***S. Weir Mitchell, M.D., LL.D.***—The American medical profession must feel a deep sense of pride in the honor conferred upon one of its most distinguished members by the University of Edinburgh in granting its honorary degree of Doctor of Laws to Dr. S. Weir Mitchell, as "the chief ornament to medical science in the New World." Dr. Mitchell is well known not only as an able neurologist, but as a practical physiologist, and a strong all-around medical man, not to speak of his lyric and general literary abilities. Himself a prodigious and tireless worker, with a most fruitful and suggestive mind, the force of his example and the aid of his counsel have had a most potent influence for good upon those who have been fortunate enough to be thrown into professional relations with him; and he has created a school of younger men who promise to carry on the good work in scientific medicine that he has begun. Dr. Mitchell is already rich in the possession of the Doctor of Laws degree of our own Harvard and of an honorary degree of Doctor of Medicine from the University of Bologna.

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# REVIEWS.

THE EYE IN ITS RELATION TO HEALTH. By CHALMER PRENTICE, M.D. Pp. 214. Chicago: A. C. McClurg & Co., 1895. Price, $1.50.

OPHTHALMOLOGY nowadays seems literally to teem with new truths, as a dog is said to teem with fleas. The present remarkable book has added to the number immensely. In the short space of 200 pages we have a cock-sure theory of inflammation, of hypnotism, of eye-strain, of drunk-cure, of all disease in fact. Like Pico of Miradola, the author treats *de omni re scibili et quibusdam aliis*, especially the *quibusdam aliis*. Pathologists will be interested in the certain settlement of all the problems that torment them, and Keeley must now look to his laurels and his dollars. Ophthalmologists will be pleased to learn how diabetes and all other evils of human flesh can be cured by "fogging" and "repression" and tenotomies of eyes without a trace of ametropia or of muscle-imbalance. The origin of myopia and of astigmatism, and their cure, are real gems of ophthalmic wisdom. The learned author has studied the eyes of the dead with much diligence; why did he not raise the dead with some of his new truths? Perhaps he has done so, but with praiseworthy conservatism is waiting until a greater length of time and a greater number of cases shall warrant reporting. To the specialist and his journal must be left extended criticism of this unique work. It will be "nuts" to them. The author has got hold of the tail-end, as it were, of some genuine truths, but the chief use of the volume, we suspect, if it have any influence besides a mirth-provoking one, will be to make "American ophthalmology," that sweet morsel in the cheek of European ultra-conservatism, still more the butt of just and unjust ridicule. It will perhaps also entrench the native skeptic in a dogmatic reactionism as pernicious and as extreme, as regards genuine ophthalmologic progress, as this poor sinner is guilty of in his furious whimsicality. As to his two great great discoveries, "Fogging" and "Repression," he is certainly an adept in the first, and it only remains for the profession to put the latter truth in energetic practice. We catch a glimpse of the true etiology of the author's discoveries in his praise of "orificial surgery" and *similia similibus*. Lest it be thought we are too severe we quote a few illustrative passages:

"In glaucoma one of the most popular treatments is iridectomy, also division of the ciliary muscle, called cyclotomy."

"Disease (as ovaritis) is localized abnormal innervation, and always central in the nervous system, being a lack or excess of motive-force. The growth of tumors is due to abnormal innervation. A lesion is always a result (of disease) not a cause."

"So-called cures of dipsomania perform whatever good they effect by temporarily relieving eye-strain" (by the mydriatic in the "jab").

"Look into the dim windows of the brain twenty-four hours after death and a deviation of the eyes from a perfect position will always be found."

"A large percentage of consumption takes its origin from irritation through the visual centers."

"Latent hyperopia where mydriatics fail."

"Nervous ailments are not so common in foggy climates, because the sight-centers are not exercised so much as in a clear, bright view."

DEFECTIVE SPEECH AND DEAFNESS. By LILLIE EGINTON WARREN. New York: E. S. Werner, 1895.

IN this little book Miss Warren shows that "fluent speech may be obtained and understood by all who suffer from the different phases of deafness and the different degrees of imperfect utterance." The little book contains, furthermore, many valuable hints for the physical, ethical, and moral training of any child, whether deaf or not. In Chapter I it is maintained that the "first positive proof of hearing is in the young child's outcry of pleasure when affected by music or other sound;" in Chapter II, that "through the sense of hearing the affections are reached;" and in Chapter III, that talking aids thinking and further intellectual development. In Chapter IV is advanced the idea that "in the healthful exercise of the lungs (in speech) lies the prevention of pulmonary diseases to which the deaf mute is peculiarly subject." In Chapter V "the child suddenly deaf and the child growing deaf slowly" are considered. It is shown in this chapter that the most unjust treatment for a partially deaf or partially mute child is to remove it from school-association with children who hear and speak well. Deprived of such influences the defective child grows worse. "A child possessing but a small amount of aural power, who has once had a good perception of sound, could maintain his place in any ordinary school, if, from the first manifestation of his deafness, he were taught to use his eyes in the place of his ears."

In Chapter VI the very important fact that "the deaf child does not know what sound is," and the vital necessity, as well as the possibility, of "teaching the deaf to hear" with the hearing most of them still retain to at least a slight degree, are presented. In Chapter VII it is shown that the "hard-of-hearing adult," having, through hereditary influences, acquired language by the ear, may by educative means continue to enjoy conversation by the eye.

In Chapter VIII dull pupils, usually those "merely suffering from a defect in hearing," in Chapter IX "invented" or "pathological language," and Chapter X "lisping and careless speech in general," are considered. In the latter chapter "the sentence-method of teaching pupils to read," says the author, "I fear will only increase the slovenly speech of American children." . . . "I would urge that teaching to read be an exercise founded on knowledge of the mechanism of speech." Chapters XI and XII treat respectively of "stuttering and stammering" and "cleft palates."

OBSTETRIC SURGERY. By EGBERT H. GRANDIN, M.D., Obstetric Surgeon to the New York Maternity Hospital, Gynecologist to the French Hospital, etc.; and GEORGE W. JARMAN, M.D., Obstetric Surgeon to the New York Maternity Hospital, Gynecologist to the Cancer Hospital, etc. Royal octavo, 220 pages. Philadelphia: The F. A. Davis Co., 1895.

DRS. GRANDIN and JARMAN have written a thoroughly practical work upon a teaching-basis, and, therefore, necessarily one of paramount interest. There is much in it worthy of special note—far more than we have space to give to it—and a few points only that we cannot indorse. Fifteen photographic plates, showing the

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stages of the various obstetric operations as performed upon the manikin, are distributed throughout the book, and with the eighty-five illustrations in the text contribute materially to the teaching-value of the book. It is to be regretted, however, that the drawings could not have been largely taken from Nature. The advantages to be derived from thorough asepsis and antisepsis are ably set forth, and some valuable suggestions as to the perfection of the antiseptic management of labor are offered. Notably may we mention in this respect the preference shown for creolin as an obstetric antiseptic agent. Creolin, with the possible exception of lysol, is the safest and most efficient pharmacopeial agent in obstetric surgery, not only as a germicide, but also as a lubricant, and as such we can strongly indorse the position taken in the remark that "the vaselin-pot"—and we might add the lard-pot—"should once and for all be banished from the lying-in chamber." The section on pelvic deformities could very easily have been more thoroughly elaborated, but the various obstetric operations are generally presented in a concise and practical manner. A certain degree of inaccuracy may be noted, especially in grammatic construction and in orthography. Thus, we are acquainted with Baudelocque's valuable work in obstetrics, but his name appears strangely unfamiliar when spelled Beaudelocque, and sentences such as the following, on page 12, are, to say the least, not euphonic: "It cannot be emphasized too strongly that the physician is to-day not guiltless who, whenever it may be, does not practice pelvimetry." Hypercriticism is never justifiable, but such defects as the foregoing mar perceptibly a truly valuable work. As it stands, the book must be recommended as a serviceable one for the student of obstetrics.

ATLAS DES GESUNDEN UND KRANKEN NERVENSYSTEMS NEBST GRUNDRISS DER ANATOMIE, PATHOLOGIE, UND THERAPIE DESSELBEN. Von Dr. CHRISTFRIED JAKOB. Mit Einem Vorwort von Prof. Dr. AD. v. STRÜMPELL. Munich: J. F. Lehmann, 1895. 10 marks ($2.50).

THIS atlas of normal and morbid conditions of the nervous system, which is the ninth volume of the series, is largely the result of observations made at Strümpell's clinic at Erlangen, and contains seventy-eight plates, mostly colored, and fourteen woodcuts, with descriptive text. The illustrations cover serially the general morphology of the nervous system, its development and structure, its topographic anatomy, and its general and special pathology. The text proper, to which 194 pages are devoted, discusses, in addition to the subjects illustrated, the anatomy and physiology of the more important nerve-paths, the general and special therapeutics of diseases of the nervous system, and, briefly, a number of diseases of unknown origin or localization, including exophthalmic goiter, myxedema, akromegaly, tetany, and tetanus. The concluding section comprises suggestions as to the best methods of preserving, preparing, and studying nervous tissue. Altogether the work appears to be well and faithfully done, and should prove a useful aid to the student of diseases of the nervous system.

SKIASCOPY AND ITS PRACTICAL APPLICATION TO THE STUDY OF REFRACTION. By EDWARD JACKSON, A.M., M.D., Professor of Diseases of the Eye in the Philadelphia Polyclinic, etc. With 26 illustrations. Philadelphia: The Edwards and Docker Co., 1895.

ALL ophthalmologists will welcome Dr. Jackson's little manual. It is an authoritative and excellent exposition of the subject with which it deals. We agree essentially with the author in his estimate of the value of this method, in the hands of those who have mastered it—a mastery, however, not easily obtained. The refraction ophthalmoscope and ophthalmometer do truly "give very inferior information." Of course, the only reliable test for the refraction of intelligent adults and young people is the subjective test with the test-types and test-lenses. But for children, for some amblyopic eyes, and for the stupid, skiascopy is the most trustworthy objective method and has the field. Another use for it that may be found is in hospital and even in private practice, in the hands of those who have not the desire or the time to do the most accurate work by the subjective method—a method that requires patience, time, and care.

EARLY SCOLIOSIS, OR CURABLE CURVATURES OF THE SPINE. By PERCY G. LEWIS, M.D., M.R.C.S., etc. Illustrated. Pp. 50. London: John Bale & Son, 1895.

ENGLISH monographs are often disappointing to Americans on account of their small size, but, as they contain much practical information in a short space, one has but to read them carefully over and over to increase their value indefinitely.

This little work before us contains much of real value upon the treatment of curable scoliosis, and this includes the majority of cases treated early and persistently.

The importance attached to hygiene, especially fresh air; exercise short of fatigue; improved habitual positions; the discarding of supporting apparatus; the development of groups of weakened muscles; to be followed by a course of general gymnastics, are all to be heartily commended and indorsed. The relations of the surgeon to the gymnastic-master are well pointed out, but the importance of massage and Swedish movements appears to have been neglected.

THE MIDDLESEX HOSPITAL. REPORTS OF THE MEDICAL, SURGICAL, AND PATHOLOGICAL REGISTRARS FOR THE YEAR 1892. London: H. K. Lewis, 1894. Price, 2/6 net.

THE medical and surgical reports comprise, each, a summary of diseases and abstracts of cases; and as an appendix there follows a "Summary of Gynecological Cases." The extensive post-mortem tables of the pathologic report contain the record of 296 cases, of which 172 were medical and 124 surgical.

Among the interesting abstracts of exceptional cases in the medical report is one of myxedema in a woman, who was "placed under the 'thyroid' treatment" and recovered.

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*Dr. Samuel S. Adams*, of Washington, D. C., who has been Professor of Clinical Pediatrics in Columbian University, has been elected to the Chair of Diseases of Children in the University of Georgetown.

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# CORRESPONDENCE.

## SO-CALLED OTO-MASSAGE.

*To the Editor of* THE MEDICAL NEWS,

SIR: Much has appeared within the past year in the medical periodicals, especially in the United States, upon so-called oto-massage, or passive motion in some form, applied to the ear for the improvement of hearing.

The procedures described and advocated by the writers of these articles may be divided into two classes: first, methods of systematic acoustic exercise of the *sense* of hearing by repeating vowels and isolated words near the deaf ear—the method of Urbantschitsch, of Vienna; and, second, procedures consisting in the application of direct force by pressure-sounds, probes, etc., to the membrana tympani and the malleus, and the conduction of musical notes and simple vibratory motions by various apparatus directly into the auditory canal—so-called pneumo-massage and phono-massage.

The first class of procedures, the only ones with an otologic status, are not new with Urbantschitsch, as he admits (*Wiener medizinische Presse*, October 21, 1894), having been already described and tried by Itard, Toynbee, and Benedikt long before. The improvement in hearing that Urbantschitsch has obtained in the very deaf is marked in some cases; but relapses, he states, ensue in all of them. The improvement he has effected by his acoustic exercises he regards as an intellectual rather than a sensorial one, as does also Benedikt (*Berliner klinische Wochenschrift*, July 30, 1894).

So far as concerns the second class, all forms of masseurs, it may be said they have absolutely no scientific otologic standing, and were pronounced useless, and even harmful, in a discussion on the subject at the meeting of the American Otological Society, May, 1894.

All forms of *direct pressure* on the membrana tympani must manifestly bruise and wound this structure, while the direct conduction of sound from vibrating instruments, etc., into the external auditory canal fatigues the ear very easily, as some of its promoters admit, and must necessarily have the same kind of effect upon any ear weakened by chronic catarrh as the noise of the telephone has, or as that of pounding rivets into place has on the catarrhal ear of boilermakers. It is plain, therefore, that all procedures of the second class must do harm to the patients, and their exploitation, as of late in some American medical journals, savors of methods I hesitate to name.

Truly yours,

C. H. BURNETT.

# SOCIETY PROCEEDINGS.

## BRITISH MEDICAL ASSOCIATION.[1]

*Sixty-third Annual Meeting, held at London, July 30 and 31, August 1 and 2, 1895.*

FIRST DAY—JULY 30TH.

SIR J. RUSSELL REYNOLDS, delivered

THE PRESIDENT'S ADDRESS.

After referring to the last meeting of the British Medical Association in London, in 1873, presided over by the late Sir William Fergusson, and when the address in medicine was delivered by the late Edmund Alexander Parkes, he referred to the vast strides that had been made in the elucidation of both structure and function—such, for example, as in the researches upon the thyroid, the adrenal bodies, the spleen, and the liver; the advance of bacteriology; the functions of the axis-cylinder of nerves; and the magnificent prospect of a new field of therapeutics in the serum-treatment of disease.

Attention was called to that which may be considered the most striking fact of modern physiologic, pathologic, and therapeutic research, namely, the power of "living," things for both good and evil—namely, in the conservation of health and in the prevention or cure of disease. The mineral and inorganic world has helped much, but now help and hope come mainly from organized products and still living agencies.

The delicate phenomena and suggestions of "living" and "chemic" functions are under minute survey, analysis, and detail—the points where they touch, the mode in which facts of either may be rendered in terms of the other; their bearings upon the life of animals and men, both as individuals and as parts of a community; the diagnosis of the most obscure diseases, and the tentative and more than tentative endeavors to counteract poisons, which can be separated but not destroyed, over-ruled but not abolished.

In the schools there has been great improvement in the mode and scope of teaching; and this especially in its being less didactic and more practical. Much of the old-fashioned, often dreary, "lecture" of an hour's duration has passed away, and in its place is a "demonstration," an "object-lesson," a conversation, or examination. These are more useful and therefore more attractive to the students; and, at the same time, more trying, but none the less efficiently rendered by the teachers.

Again, in clinical teaching there are much more and closer personal relationships, not only between physician and student, but between student and patient. The latter is not a mere "dummy" in a bed, exhibited as a specimen of this disease or that, but a "human being" to be spoken to and to help the student to find out whether or not the card at the head of his bed, on which the diagnosis of his malady is supposed to written, is correct, or as full as it might be.

Then there is another point particularly noticeable when demonstrations are being given, either at the bedside or in the laboratory, namely, the far greater interest and earnestness that characterize the student of to-day as compared with his predecessor. Much of this is due to the indulgence of a larger hope. Hidden as still are the great mysteries of life, there are yet definite facts to be grasped by the mind, to be seen and handled, not only imagined or asserted; and the place of these facts in the economy of Nature, their bearing upon others, and their relation to work yet to follow, give a precision and confidence to study that is, comparatively speaking, of modern growth. There was plenty of assertion and show of knowledge in the past; but even the teachers did not believe the half of what they taught, nor comprehend the half of their sage pronouncings. Nature has, as it were, taken man more into her confidence, and daily reveals so much, even while concealing more, that the learner stands firmly on the ground he has gained,

[1] From advance-sheets kindly furnished by the British Medical Journal.

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instead of trembling on a quagmire, the length, and breadth, and depth of which he could not see and did not care much to imagine or investigate. He felt sure of little then but of his own and his teacher's ignorance, but now he grasps much that is ascertained truth, and such as can be seen, shown, measured, and recorded with perfect accuracy.

There are some points in the present state of scientific precision in which it would appear that but little advance has been made. Much more is known about diseases, their origin, their anatomy, pathology, interrelations, modes of ending, and their treatment; but with regard to nosology and nomenclature there is little of which to be proud. Groups of symptoms have been described by different observers as marking some tolerably distinct departures from recognized types of malady, and, for want of any nosologic position being assigned to them, they are called after their first describers' names, and so we have not only Bright's disease, Addison's, and Graves', but a host of others, often indeterminate in character, going by the name of Friedreich, Raynaud, Hodgkin, and others, until there is a fair prospect of every distinguished pathologist or clinical investigator being handed down to posterity as a disease, the name of which conveys no semblance of a meaning as to its nature. Still further, and more to be deplored, there are smaller groups of symptoms that are not honored by receiving the names of their describers as separate diseases, but the names of the observers are tied on to the symptoms; and so Cheyne-Stokes' breathing, Corrigan's pulse, von Graefe's sign, somebody's else phenomenon, and a multitude of other like phrases are used, to the great confusion of the student, and not only so, but to his real and permanent injury. For what is easier to say than that there is "Cheyne-Stokes' breathing," except to feel a sense of rest in having made use of that learned phrase, and so practically to shut the door to further inquiry as to what it means and how it comes about, what its diagnostic or prognostic value may be, and how it bears on therapeutics?

Of course, to give the proper name to a disease is to place it where it should be, nosologically, "at home," and understood; but medicine is not a science yet sufficiently "ordinated" for this thing to be done, and so we grope about, and "gather dust and chaff," with little chance or hope of turning them to value; and instead of making this the matter of most serious investigation, and finding the true relation between the new "group of symptoms" and those others which form the central facts, the backbone and whole skeleton of pathology, we lay hold of the first piece of red tape ready to our hand, tie up the group of symptoms in a bundle, and label it Brown's, Jones', or Robinson's disease!

At the very time that there is this increasing use of loose phraseology, there is also—as is common enough in other departments of life—a marked tendency in the opposite direction, and that is to connote as diseases certain groups of symptoms by some short, or long, and often not very appropriate word or words, such as akromegaly, hypertrophic pulmonary osteo-arthropathy, appendicitis, pseudo-hypertrophic muscular paralysis, and others. There is abundant precedent for this; some are time-honored and old enough to be allowed to live, such as pertussis, epilepsy, apoplexy, chorea, gout, and rheumatism, which have the merits of brevity and of meaning; but there have crept into ordinary conversation nowadays a number of expressions which aid us little, or not at all; and such words as gastro-jejunostomy and laparotomy do little more than lay us open to the satires of the playwrights of the last century in foreign countries, and its predecessors in our own.

But whatever may be our failures—and they are small compared with our enormous successes—there is nothing that has happened during the past twenty years to be compared in importance with the new revelations that have been made of the potency and pre-potency of life—the power of life in life—in health, in disease, and in its treatment. These include the interpretation of much of the functions of certain organs, the existence of which had been known for many years, but the utility of which had been absolutely unknown, for example, the pituitary body, the thyroid gland, the suprarenal capsules, and others.

The knowledge of the functions of the liver and the spleen has been gradually increasing for a long time, and only by slow degrees have the current notions of the metabolic properties of these organs taken the place of the older ideas of secretion of bile and balance of weight. It has been, on the other hand, although the outcome of serious investigation, but also somewhat by a fortuitous concourse of thoughts and events, that the most astounding revelations of modern physiology have been made. What we have come to know amounts to this in general terms—that the absence of certain organs, of the functions of which, until quite recently, we knew nothing definite, leads to grave and diverse diseases of the body, whether this absence be brought about by surgical operation, or by disease more or less individual or specific in its character, and that, such being the case, the supply of the material of that organ as food, or some part of it, as an extract, to be introduced into the blood, removes the symptoms, acts with great promptitude, and, one might say, almost with some violence of disturbance of the whole economy. Not only so, but these extracts seem to possess a power reaching far beyond that which was first found to be their almost anticipated result—that is, in so modifying the action of the heart and the intravascular pressure, in a manner and to a degree entirely unlooked for, and requiring much further investigation; in order to unravel the true nature of the functions of those organs in health, and the value they may have, by their products, on the processes and treatment of disease. As yet we are only on the threshold of still greater discoveries in regard to life, but we see, through the portal, ranges of facts which are trustworthy guides as well as sign-posts, and which will, we believe, lead us to a larger knowledge of those recondite processes of life in its most essential and characteristic features—namely, of the nutrition of all organs, of the way in which this is brought about, and of the interdependence of all tissues, so that, perhaps in a far higher sense than we have ever realized before, the truth may be revealed that "when one member suffers all the others suffer with it," and the reason of this may be explained.

A very obvious consideration which should "give us pause" in self-congratulation is this, that as in past days the functions of different parts of organs, the kidneys, for example, were more or less clearly separated

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by physiologists no longer with us now; so we have seen recently that only certain portions of other organs have the physiologic effects just discovered, and thus that there may be in what we have regarded as much simpler organic components, even in quite simple tissues, some unconsidered element of function, some *sine quâ non* of healthy life, some missing link in the phenomena of disease, so that it behooves us to keep the mental eyes wide open, to clear away all films of prejudice or hasty complacency, to expect the unexpected, and so, without looking for it, to find our reward.

Not less important than the matter just referred to is the recent development in "microbiology" and "all that therein is." The "germ-theory" of disease is not new. When it commenced, and who has the credit of its begetting, is not known. Probably, like ancient and modern heroes, it had many parents, and as many homesteads. It is quite clear that the great Harvey entertained it. Years later it was a hobby ridden by many, but without much convincing proof.

The most important fact with regard to recent microbiologic research is the gradually increasing appreciation of the fact that these lower forms of life exert, not necessarily mischievous, but, indeed, benignant influences on the human body, and that although the mode of their operation is not fully explained, they take part in healthy processes, assisting normal functions, nay, indeed, it would seem sometimes producing them and warding off the malign effects of other influences to which we are habitually exposed. These bodies to which we are indebted for this aid operate partly by chemic action and partly by what we must call a vital process, and by their cultivation outside the human body and their modification by passing through other organisms can be made to exert a malign or a beneficial agency on man.

The third great revelation of the last twenty years is the wonderful protective and curative power of these living products. This, in a very wide sense, is not new. Of all the most powerful agents of destruction, the most violent have been derived from "living" things; they are to be found in the animal and vegetable worlds, not in the mineral. In their most terrible malignity—such as in snake-bite, glanders, or hydrophobia—these need no human skill for their development; they are prepared in the laboratory of Nature, and, alas, are only too ready to our hand. Next to these come the poisons of stinging things, and, after them, the more slowly operating and less deadly animal infections; some with indeed beneficial influence, as "vaccinia;" others with local effects on the skin, but not often great disturbance of the general health.

The vegetable kingdom can produce potent poisons, such as belladonna-berries, aconite-root and leaves, poppy-juice, and the ignatia bean; but in order to render these more deadly the hand of man has to come in and prepare nicotin, strychnin, morphin, and the like; just as it may produce from the mineral or quasi-mineral world such potent agents as hydrocyanic acid, concentrated acids, and other dealers of destruction.

The interest in these facts lies in the modern mode for their utilization. The great potency of living products has led to very fanciful notions in therapeutics; and there have been those who, to cure diseases of organs, have given portions of the same but healthy organs of animals or of man or other animals. Again, the idea has been pronounced that even excreta were useful drugs, and that the diseased organs of man might effect a cure of those supposed to be afflicted in like manner.

Curious as some of these details are, they are of real interest to us only as they lead up, through inoculation for smallpox, to Edward Jenner's discovery of vaccination, and then, through the researches of Pasteur and Brown-Séquard, to our present state and plane of knowledge. It would seem now that there is scarcely any limit to what may be expected in the cure or prevention of disease; and the most striking of all phenomena is, to my mind, the probability of rendering an animal immune by the introduction into its organism of a healthy constituent of the body of another. This, if fully confirmed, will be the greatest veritable triumph of therapeutic medicine, instituted and guided by extended inquiry into comparative anatomy, physiology, and pathology. As in the human race or species there exist, as is well known, what may be termed "idiosyncrasies"—by which is simply meant that as a matter of fact some people, and some people's families, escape epidemic diseases, whereas they are especially prone to take others to which they may be exposed—so in the great economy of Nature certain groups of animals have been shown to exhibit no capacity for "taking," or for even being "inoculated" with the poisons to which others are exposed, and from which they suffer, and that severely. It would seem, therefore, that use may be made of these animals, more or less naturally immune from certain maladies, and that their immunity may be partially conferred on man.

Quite recently a communication of the greatest importance has been made on the rendering of animals immune against the venom of the cobra and other snakes, and on the antidotal properties of the blood-serum of immunized animals. This subject has occupied attention during the last six years, and we must all look forward with expectancy and hope to the possible and probable diminution of a great national and imperial calamity.

The outcome of all this is that the scattered fragments of knowledge and "guesses of truth" of many years have been gathered into a focus during the past twenty-five years; that the vegetable life, extracting from the mineral world the materials it needs for growth and the production of powerful agencies for good in the form of food and medicines, and for evil in the form of poisons, has given itself up to the growth of animal life, with its much more complex organs, and for the cure of ills once thought beyond the reach of human aid; but that, thanks to man's scientific ardor and industry, it has again shown itself to be our servant, our helper, and our protector.

These are not dreams of the study, they are facts of the laboratory and of daily life; and in using that word "life" again, emphasis is to be laid upon the belief that it is to living agencies and their employment that we must look for help in the care of infancy, the conduct of education—moral, mental, and physical—the training up of character as well as of limbs; that it is the guidance of living functions, in the choice of living occupations, be they either of hard work or of amusement; it is to these we must appeal if we would see the *mens sana in corpore sano;* and then it will be to these

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that we may confidently look for help when the inroads of age or of disease are at hand, often to cure us of our trouble; or, if not, to give us rest and peace.

Speaking of the "professional" life, it was said that as physicians and surgeons, however numerous, we do not constitute a "body" of men unless we have some one prevailing spirit, common to us all. The profession may include its thousands and tens of thousands, but it is a crowd, a multitude, or a "mob," unless there is in it an *esprit de corps;* and, thanks to our great seats of learning, our universities and colleges, we have developed this uniting spirit now for many years. But our own special colleges of physicans and surgeons, our medical societies, and especially this vast Association, have done more within the last fifty years to give real, unifying life to its individual members than was possible, or even expected to be possible, by our forefathers.

That so large a body of men should be banded together under one common name means that they have some common purpose and some common plan of cooperation to attain it.

What that purpose is we know, namely, to render our profession of the highest service, not only to the individual but to the State, by taking our share and giving our advice in the making of our laws, so far as they affect us, as members of our profession; by the regulation of our charities; the guidance and control of labor; the care of the pauper and the pauper child; the lunatic and the quasi-lunatic, or the habitual drunkard; by the care of our poorer brethren; by the advance of scientific researches, and especially of those that require combined efforts and combined funds for their prosecution; by the promotion of useful and stable literature; and by the elevation of all that constitutes the education of the man of science, the physician, the surgeon, or the guardian of the public health.

These noble purposes cannot be achieved, nor have any of them been carried to any useful extent, without self-sacrifice, as well as the sacrifice of time; without a consideration of the views of others as well as an assertion of one's own; without respectful regard to the feelings and positions of our colleagues, as well as a due estimation of those which we may occupy; without patience as well as work; and an all-pervading sense of hope, in the midst of trying times and in the darkest hours. One thing, in addition, we should all most strenuously try to do, and that is to avoid waste of time. We may use it, or sacrifice it freely, but we cannot afford to throw away one moment; whether it be on personal ends, forlorn hopes, foregone conclusions, or threshed-out heaps of seedless fagots.

Outside our professional life, but closely mixed with our daily work, is the "social" constitution, or, as some would call it, the "environment" in which we have "to live and move and have our being." Certainly it has changed much within the last twenty years, and it would be impossible to say in what ways we have advanced, and in what others we have either retrograded or gone far, far out of the beaten track. The changes are on all hands, are pressing, importunate, and overbearing.

It would seem as if "reverence, that angel of the world," had from some regions taken flight, and that in her place were idols, or mocking shadows, or gorgeously apparelled lay figures. This absence of reverence shows itself everywhere, but, perhaps, it is possible to classify even such a negative quality and put its leading features under three great categories: (*a*) reverence for all that constitutes the religious element in life; (*b*) for that which is the groundwork of "social" propriety, and one may say even of decency, as our predecessors would have thought; and (*c*) for the constituted order of relative dignity in "family" life.

Finally, reference was made to the conduct of our profession to the "religious" element in our nature. Here we have nothing whatever to do with creeds, be they hoary with age or flushed with the bloom of youth; as members of the medical profession, we have to deal with those to whom these creeds mean much, and are, with what they entail to many, the be-all and end-all of existence. In giving the help we hope and ought to give to suffering and sorrowing man, we should do nothing worthy of the name unless we realize, and that to the full, the importance of this factor in our lives and theirs; and so guide its operation as to help it to chasten, subdue, control, and comfort those to whom it is the minister that they feel to be sent from God to help them in their passage through this region of passing shadows to that of realities which are abiding things.

(To be continued.)

## NEWS ITEMS.

***Food-adulteration.***—The following is the text of an Act passed by the Pennsylvania Legislature at its last session and approved by the Governor:

AN ACT to provide against the adulteration of food and providing for the enforcement thereof.

SECTION 1. Be it enacted, etc., that no person shall within this State manufacture for sale, offer for sale, or sell any article of food which is adulterated within the meaning of this Act.

SEC. 2. The term "food" as used herein shall include all articles used for food or drink by man, whether simple, mixed, or compound.

SEC. 3. An article shall be deemed to be adultered within the meaning of this Act.

(*a*) In the case of food: (1) If any substance or substances have been mixed with it so as to lower or depreciate or injuriously affect its quality, strength, or purity. (2) If any inferior or cheaper substance or substances have been substituted wholly or in part for it. (3) If any valuable or necessary constituent or ingredient has been wholly or in part abstracted from it. (4) If it is an imitation of or is sold under the name of another article. (5) If it consists wholly or in part of a diseased, decomposed, infected, tainted, or rotten animal or vegetable substance or article, whether manufactured or not—or in case of milk if it is the product of a diseased animal. (6) If it is colored, coated, polished, or powdered, whereby damage or inferiority is concealed, or if by any means it is made to appear better or of greater value than it really is. (7) If it contains any added substance or ingredient which is poisonous or injurious to health. *Provided*, that the provisions of this Act shall not apply to mixtures or compounds recognized as ordinary articles or ingredients of articles of food if each and every package sold or offered for sale be dis-

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tinctly labelled as mixtures or compounds, and are not injurious to health.

SEC. 4. Every person manufacturing, offering, or exposing for sale, or delivering to a purchaser any article of food included in the provisions of this Act shall furnish to any person interested or demanding the same who shall apply to him for the purpose and shall tender him the value of the same, a sample sufficient for the analysis of any such article of food which is in his possession.

SEC. 5. Whoever refuses to comply upon demand with the requirements of Section 4 and whoever violates any of the provisions of this Act shall be guilty of a misdemeanor, and upon conviction shall be fined not exceeding one-hundred nor less than fifty dollars, or imprisoned not exceeding ninety nor less than thirty days, or both; and any person found guilty of manufacturing, offering for sale, or selling any adulterated article of food under the provisions of this Act shall be adjudged to pay in addition to the penalties herein provided for all necessary costs and expenses incurred in inspecting and analyzing such adulterated articles of which said person may have been found guilty of manufacturing, selling, or offering for sale. *Provided*, that all penalties and costs for the violation of the provisions of this Act shall be paid to the Dairy and Food Commissioner or his agent, and by him paid into the State Treasury, to be kept as a fund separate and apart for the use of the Department of Agriculture for the enforcement of this Act, and to be drawn out upon warrant signed by the Secretary of Agriculture and the Auditor-General.

SEC. 6. The agent of the Department of Agriculture, known as the Dairy and Food Commissioner of this State, shall be charged with the enforcement of all the provisions of this Act, and shall have the same power to enforce the provisions of this Act that is given him to enforce the provisions of the Act by which he receives his appointment.

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***International Conference of Railway and Steamship Sanitation.***—The measures taken in different countries to protect the lives of employés of railways and steamships and to guard their sanitary interests differ widely, and are insufficient in some respects. For this reason it has appeared desirable to organize an international conference of medical men interested in these matters, and the first will be held in Amsterdam, September 20 and 21, 1895. The committee of organization has divided the work of the conference into three sections: (1) The protection of the employés; (2) the medical organization; (3) the hygienic interests of employés and passengers. The committee has prepared a report of what has been done in these directions in Holland, either by the government or by the transportation-companies, and hopes that similar reports will be made by the representatives of other governments and companies for purposes of comparison and improvement. In view of the international importance of a number of questions to be considered, the committee invites governments and railway and navigation-companies to select representatives to the conference, and to send their names, together with the titles of communications to be presented, to the General Secretary, Dr. Pijnappel, Stadhouderskade 60, Amsterdam, before September 1st. Members of the conference will pay a fee of 5 florins ($2). The official languages will be French, English, and German. Prof. H. Snellen will be the presiding officer.

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***The Inoculation-treatment of Cholera.***—Statistics prepared by POWELL (*Indian Medical Gazette*, vol. xxx, No. 7, p. 253) show that among 3021 inhabitants of India inoculated according to the method of Haffkine, there occurred 3 cases of cholera, with 2 deaths, the diagnosis in 1 case being very doubtful, while among 4046 inoculated persons there were 52 cases with 22 deaths.

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***The American Electro-therapeutic Association***, will hold its fifth annual meeting at the College of Physicians and Surgeons of Ontario, in Toronto, Canada, on September 3, 4, and 5, 1895.

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***Dr. William S. King***, a retired army surgeon, died on August 2d, at Asbury Park, at the age of eighty-five years.

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BOOKS AND PAMPHLETS RECEIVED.

Adeno-carcinoma of the Skin Originating in the Coil Glands. By J. A. Fordyce, M.D. Reprinted from the Journal of Cutaneous and Genito-urinary Diseases, 1895.

Surgical Pathology and Therapeutics. By John Collins Warren, M.D. Illustrated. Philadelphia: W. B. Saunders, 1895.

Three Cases of Acute Pyelitis in Infancy. By L. Emmet Holt, M.D. Reprinted from the Archives of Pediatrics, 1894.

The Nomenclature of Diseases of the Gastro-enteric Tract. By T. M. Rotch, M.D., and L. E. Holt, M.D. Reprinted from the Archives of Pediatrics, 1894.

The Significance of the Presence of Lactic Acid in the Stomach. By Julius Friedenwald, A.B., M.D. Reprinted from the New York Medical Journal, 1895.

Remarks to the Senior Class of the Ohio Medical University Previous to taking up the Subject of Refraction. By J. W. Wright, A.M., M.D. Reprinted from the Columbus Medical Journal, 1895.

Report of the Commissioner of Education for the Year 1891–1892. Vol. I, Containing Part I. Vol. II, Containing Parts II and III. Washington: Government Printing Office, 1894.

Ninth Annual Report of the State Board of Health and Vital Statistics of the Commonwealth of Pennsylvania. Transmitted to the Governor, December 1, 1893. Clarence M. Bush, State Printer of Pennsylvania, 1894.

Maps. Pennsylvania State Weather Service. Under the Direction of the Committee on Meteorology of the Franklin Institute. W. P. Tatham, Chairman; H. L. Ball, Observer in Charge. 1. Mean Annual Distribution of Heat by Isothermal Lines. 2. Annual Distribution of Precipitation. 3. Flood Map, May 31 to June 3, 1889. "Johnstown Flood."

The Prevention and Treatment of Ophthalmia Neonatorum, and the Necessity for More Efficient Legislation to Prevent Blindness from this Cause. By Charles H. May, M.D. Reprinted from the Medical Record, 1895.

The Pre-tubercular and Pre-bacillary Stages of Consumption. By Charles Manly, A.M., M.D. Read before the Colorado State Medical Society and before the Alumni Association of the Denver Medical College, 1894.

Some Observations of Paresis in the Negro. By P. T. Vaughan, M.D. Reprinted from the International Medical Magazine, 1895.

Malposition of the Testicle; Phimosis; Acute Insanity; Operation; Cure. By Howard Crutcher, M.D. Reprinted from the Medical Record, 1895.

The Evolution of the Diseases of Women. By W. Balls-Headley, M.A., M.D. (Cantab.), FR.C.P. (Lond.). London: Smith, Elder & Co. Melbourne and Sydney: George Robertson & Co., 1894.

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# THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXVII. SATURDAY, AUGUST 17, 1895. No. 7.

## ORIGINAL ARTICLES.

### THE PREVENTION OF MASTOID EMPYEMA.[1]

BY CHARLES H. BURNETT, M.D.,
AURAL SURGEON TO THE PRESBYTERIAN HOSPITAL, ETC., PHILADELPHIA.

MUCH that is interesting and valuable has been written upon so-called "mastoid disease" and its treatment, but little or nothing on its prevention. This tends to spread abroad and foster the idea in the minds of the general profession that mastoid disease—*i. e.*, mastoid empyema and caries—is almost a necessary consequence of an otitis media, whereas quite the reverse is the truth. The subject naturally divides itself into the consideration of acute and chronic mastoid empyema.

It is highly probable that in every case of acute otitis media purulenta there is some involvement of the mastoid antrum in the inflammatory process; but this, like the acute inflammation in the tympanic cavity, will get well if not secondarily infected from without by improper treatment. Hence the prevention of mastoid empyema in cases of acute otitis media resolves itself into the prevention of secondary infection of the acutely inflamed middle ear.

It is the duty of the members of this Society to inculcate the idea that the proper treatment of an acute otitis media is largely negative, after either spontaneous or artificial opening in the membrana has occurred and a discharge set in. The inflammation of the middle ear being due to pathogenic germs (streptococci) in the middle ear, to which they have gained access from the naso-pharynx, the endeavor on the part of Nature, generally successful, is to afford them an exit from the tympanum by a spontaneous rupture of the membrana. Then a natural siphonic action sets in, which empties the mastoid antrum and saves the mastoid cavity, if this siphonic current is not stopped by irritative interference.

However, inspissation of the lateral portion of the exudate lying against the inner surface of the membrana, or previous thickening of the membrana, often delays and sometimes prevents spontaneous rupture of this diaphragm. Pain continues, the exudation is dammed backward toward the antrum, and if paracentesis is not now performed within twelve hours of the beginning of the earache, a mastoid empyema may be the result.

It follows, therefore, from what has just been said of the origin and progress of an acute otitis media, that all forms of inflation of the tympana should be carefully avoided in this disease, not only for the welfare of the ear already infected with pathogenic germs, but also in order to avoid forcing similar germs, into the, as yet, unaffected ear. In fact, in many cases of acute otitis media the disease in the middle ear is often a secondary result of the treatment of the naso-pharyngeal disease, rather than of the latter disease itself. It will be found, when an acute otitis media occurs a week after the ear on the opposite side has been inflamed, that this result is due to the numerous inflations of the tympana that, unfortunately, most of us have been taught to practise as part of a routine treatment of an acute otitis media. I have long since found it advisable *never* to inflate the ear, by *any* method, in either acute nasal or aural disease, because it has proved to be both painful and injurious.

I do not believe it is possible to abort an acute otitis media excepting by a paracentesis of the membrana in the early congestive stage. Sometimes congestion of the auditory canal and of the membrana undergoes spontaneous resolution, in spite of the ill-judged treatment it often receives. In acute otitis *dry heat* will never do any harm and may give relief. An instillation of ten drops of a warm, watery solution of carbolic acid[1] (2 per cent.) or of mercuric chlorid (1:10,000) may also give relief, if the congested membrana can endure the mechanical presence of such a column of fluid, which, I have observed, it rarely can. Such applications, however, tend to destroy staphylococci, always present in the auditory canal, and thus render the middle ear less liable to secondary infection through the perforation in the membrana when it occurs. As soon as the membrana is perforated and a discharge sets in, or even before this takes place, immediately after paracentesis, we should urge the medical attendant to insert simply a strip of iodoform-gauze or carbolic-acid gauze, an inch-and-a-half long by a quarter-of-an-inch wide, into the auditory canal, for antiseptic drainage-purposes, place a tuft of the same gauze in the concha, and

[1] Presented at the Twenty-eighth Annual Meeting of the American Otological Society, New London, Conn., July 16, 1895.

[1] Not with glycerol, as this neutralizes the effect of carbolic acid.

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let the ear alone for twenty-four hours, when the same kind of dressing may be reapplied if the previous dressings are moist, or let alone for twenty-four hours longer, if they are dry. At no time do I syringe the acutely inflamed ear or put anything into it but the dressing mentioned, and I find that the middle ear heals rapidly and the perforation closes. We should strenuously diffuse the idea that all insufflations, moppings, syringings, and instillations, of anything, will now be irritant to the membrana and middle ear, and tend to bring about secondary infection.

We have all seen cases of acute otitis media, treated in the old way by putting various medicaments into the ears, turned into chronic cases, both with and without mastoid involvement; whereas an acute otitis media properly treated is never followed by mastoid involvement, or a continuance of discharge from the ear, but gets well in five or six days.

Since January of this year I have seen in consultation six cases of mastoid empyema, one chronic and five acute, *all* the result of improper treatment of the primary otitis media, by syringing with hydrogen dioxid, insufflation of boric acid, inflation of the tympana, etc.

The members of this Society should spread abroad the valuable knowledge that if dry heat gives no relief to pain, then the only other proper thing to do in acute otitis media is promptly to incise the membrana, preferably under ether. Then drain the canal antiseptically as described, and let the ear alone. We thus can prevent mastoid empyema. Schwartze was the first to sound the note of warning against secondary infection of the mastoid by insufflation of boric acid in acute otitis media, and Gradenigo and Pes[1] have recently written what must ever stand as a classic guide in the rational treatment of acute otitis media, in which they urge what in substance I have presented in this paper. Lermoyez and Helme,[2] too, have shown that even the cotton-tuft on the cotton-holder, twisted by the cleanest of fingers, is loaded with staphylococci, and should be subjected to sterilizing processes before being inserted into the ear.

In the face of all this wise teaching, it is most regretable that many of the younger aurists and some general practitioners are apparently vying with one another in their devices for pumpings, syringings, blowings, swabbings, etc., applied to the naso-pharynx and middle ears in acute otitis media. It is not surprising, therefore, that the number of cases of acute mastoid empyema is increasing, and that reports of such cases come in from all quarters, the writers and reporters apparently unconscious that they are detailing the secondary results of their own irritant and infectious treatment, applied either by way of the naso-pharynx or external ear, or by that unfortunately infectious procedure, in the absence of suppuration beneath the mastoid tissues, the so-called Wilde's incision, and, in some cases, by setons, even in this era of antisepsis.

If acute mastoid empyema is not prevented, necessarily we must all continue to observe chronic otorrhea and chronic mastoid empyema. Here, too, the treatment resolves itself into one directed primarily to the middle ear. Chronic mastoid empyema cannot be cured until the chronic tympanic purulency is arrested. Mastoid trepanation in chronic mastoid empyema, without exposure of the middle-ear cavity and removal of carious and necrotic tissues, is valueless in all instances, even in intracranial lesions, for if the tympanic cavity is allowed to remain more or less full of the carious and infective tissues from which the mastoid caries, the sinus-thrombosis, or the cerebral abscess has arisen, not one of these diseases is radically cured until the infectious nidus in the middle ear is destroyed.

Mastoid trepanation alone does not check chronic otorrhea. The necrotic tympanic tissues must be removed before the chronic purulency is checked. This is a common observation, not only in mastoid caries, but in intracranial, cervical, and pharyngeal lesions of otitic origin. No operation on the neck or within the cranium in such cases, though it may immediately save the life of the patient, may be of permanent value so long as necrotic tissues are left in the middle ear. This fact aurists should keep before the minds of the profession. But far better than any directions for the cure of mastoid empyema is the proclamation of methods of prevention.

[1] Archiv f. Ohrenheilk., Bd. 38.

[2] Annales des Maladies de l'Oreille, vol. xxi, January and June, 1895; also Hamon du Fougeray, Ibid., June, 1895.

## REMOVAL OF THE APPENDAGES AND LIGATION OF THE UTERINE ARTERY TO THE UTERO-CERVICAL JUNCTION.

### *Report of Forty-five Cases of a New Operation.*

BY F. BYRON ROBINSON, M.D.,
OF CHICAGO, ILL.

I introduced the operation of removing the uterine appendages and ligating the uterine artery to the utero-cervical junction about two years ago. The technique consists in ligating the appendages and then snipping them off. An aneurism-needle, armed with a double ligature, is then passed through the broad ligament at the cervico-uterine junction on the inner side of the uterine artery. The one ligature is tied along the side of the uterus, including the perpendicular

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arteries of the uterus, the Fallopian tube, and the round and ovarian ligaments. The other ligature is tied on the broad ligament, including the infundibulo-pelvic ligament. Another method consists in ligating and removing the appendages, and then simply ligating the uterine artery once or twice as it courses through the broad ligament by the side of the uterus as low down as the neck.

The first method is the best, as it results in atrophy not only of the bloodvessels, but also of the nerves and ganglia. I have ligated the uterine artery down to the cervico-uterine junction in nearly all of my forty-five cases. No symptoms of tissue-death in the uterus have so far appeared in any of the cases. In some pain is severe for from twenty-four to forty-eight hours, but it seems due to trauma by the ligatures on large numbers of nerves and ganglia. This pain can be quieted with gr. $\frac{1}{16}$ morphin once or twice, for that of greatest severity is generally over in fifteen hours. This operation can be widely applied in surgical gynecology. It produces sufficient shock on the circulatory and nervous apparatus quickly to cause atrophy of growing uterine myomata. The effect of ligating the uterine arteries as they course through the broad ligament is to cause rapid atrophy of the endometrium, checking endometrial secretions and hemorrhage. The pelvic floor is preserved intact by this operation, obviating the danger of vaginal hernia. A vaginal hysterectomy, performed by Dr. Lucy Waite, with my assistance, was followed in several months by a vaginal hernia.

The operation under consideration brings on the menopause rapidly. The latter followed in two months in one case. The operation leaves a functionless, atrophic uterus, in normal position, which so far among my patients has occasioned no trouble. This report is based on forty-five operations, performed during the last twenty-six months. In several of the cases I assisted Dr. Lucy Waite and Dr. Bertha Van Hoosen, and include these in the report. The utility of the operation resides in the following points: (1) it checks hemorrhage; (2) it arrests menstruation; (3) it elevates the uterus; (4) it causes shrinking of the uterus; (5) it avoids the removal of uterine myoma; (6) it avoids vaginal hernia.

We have proved that the operation is suitable to every one of the foregoing six propositions. Dr. Van Hoosen reports that menstruation has not reappeared in any of the cases in which I assisted her in operating. I know of not a single case in which Dr. Waite and I operated in which menstruation continued. We removed the appendages and tied the uterine arteries in a patient thirty-seven years old, with a myoma extending above the pelvic brim. Three months later the tumor was decreased in size one-half; eight months later the uterus is what I should term almost normal in size. The operation causes shrinking of the inflamed uterus, which is nearly always associated with suppurating appendages, and as a result excessive secretions are checked. I have, time after time, by subsequent examination, proved the shrinking or atrophying of the large, hard, inflamed uterus. The operation elevates the retroverted uterus, and maintains it in position. It is superior to hysteropexy, as it leaves a movable uterus.

Eight months ago I operated with Dr. Verity, of Chicago, in a case with diseased appendages, and with a large, hard, retroverted, inflamed uterus. We removed the appendages and tied the uterine arteries almost down to the cervix. Eight weeks subsequent to the operation I examined the patient, and the uterus was in a distinctly normal position. It was movable, and shrunken at least one-third in size. As the months go by I am examining the patients operated on. I find that the large uteri, with myomata and subinvolution, have all shrunk to normal and less than normal. Large uteri that required space outside of the pelvis are now equal to a normal uterus, or even less in size. Menstruation has not ceased entirely in every one of the forty-five cases, but in only two or three is there a slight flow, and in such cases some old inflammation has recurred. The removal of appendages does not always cure a uterus infected and chronically inflamed; but the operation is applicable to the six propositions stated. Two objections may be raised against the operation: (1) the danger of gangrene; (2) the ligation of so much tissue.

I do not consider it an objection that one might penetrate the bladder with a ligature-armed needle, or that a ureter might be included in the ligature, as any other operation is encumbered with similar dangers. The idea that the ligatures might become infected and lead to subsequent fistulæ is not a serious objection. I would suggest that the ligature which includes the broad ligament should not include the Fallopian tube with its mucous membrane, as that might enhance the chances of suppuration. The needle could be passed just beneath the tube. This method ought not to protract the operation more than ten minutes. Among forty-five cases one patient died from the results of the operation. This patient was a weak and worn-out woman of thirty-seven years of age, who had had a myomatous tumor for six years. The broad ligament was tied in sections, and the tumor shrunk so rigidly in four days that it produced a kink in the bowel by dragging on it. The bowel was not completely obstructed. The patient went on well for four days, after which she suddenly sank in a few hours, without any symptoms. An autopsy revealed the fact that in four days the tumor had shrunk enor-

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mously, and a kink was found in the bowel. The debility of the patient and the worn-out nervous centers were to blame for this death. The other death among the forty-five cases was due to urinary suppression on the sixth day in a woman who had almost flowed to death during six years with a large uterine myoma. The case progressed well for six days after the operation, when the urine ceased to be secreted, and the patient died about thirty-six hours later.

## CLINICAL LECTURE.

### *VESICULAR EMPHYSEMA.*

BY CHARLES G. STOCKTON, M.D.,
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LET us begin the study of this case with a little practice in the art of observing symptoms. The child is an Italian who came to this country in infancy. The mother said that when still an infant the child had difficulty in breathing and had spells of wheezing, and at times of coughing. She has continned to present these symptoms, and now, at the age of eight years, although fairly well developed, shows some peculiarities of interest in the study of her disease.

You will notice that the child has a short neck, owing to the encroachment of the trunk. She is somewhat round-shouldered; the scapulæ project; the ribs arch out under the scapulæ; and the chest in front is quite round. The ribs are comparatively horizontal and the intercostal spaces are ill defined. You will note further that the child breathes hurriedly, and, in spite of this, oxygenation is imperfect, as shown by the lividity of the lips and face, which is apparent even through the tawny Italian complexion. The abdomen is somewhat prominent and the type of respiration is largely abdominal, the chest being comparatively fixed. All this shows that Nature is doing her best to get air into the lungs and make oxygenation as nearly perfect as possible, but she, nevertheless, fails. Coming near the child you can hear the wheezing, and on auscultation of the chest there is marked sibilant breathing and occasionally sonorous breathing. Listening still more closely one can detect a relative loss of vesicular character in the respiration. There is to be heard over the larger tubes the blowing sound which is normal, but this sound is more diffused in her case, as it is not masked, as it naturally is, by the finer sounds of vesicular breathing.

Here is an instance in which a diagnosis can be made by the direct method. To make it still plainer that the chest is distended with air, let me practise percussion. Note how marked the resonance is. The condition is that of a chest full of air in a child embarrassed for want of air. The paradox can be explained only by adding that the lungs are filled with residual air, not with air coming and going with each respiratory act. It is an instance of vesicular emphysema, a disease not often seen in childhood; but when it does occur early in life, before the bones have became firm, we see the classic picture of a barrel-shaped chest. Besides emphysema, the child has a certain amount of bronchitis, at present limited, but at times becoming greater. She has also asthma. This group, emphysema, bronchitis, asthma, is frequently found. Any of the three may come first. Which has been the first here? Undoubtedly the emphysema. In some lungs there is a faulty development or a fibroid degeneration of tissue, so that the lung loses its elasticity, and, not being able to empty itself, the air-cells remain constantly distended, while only a modicum of air passes in and out. In such cases emphysema comes first, without any predisposing bronchitis or asthma. The condition is sometimes hereditary, sometimes acquired, but not susceptible of perfect explanation. The results of this condition of the lungs are hence easily understood. The ribs are pushed out into a nearly horizontal direction; the intercostal spaces may actually bulge. The abdomen and neck are encroached upon in the efforts that Nature makes to enlarge the capacity of the lungs.

After a time the degeneration progresses so far that numberless little air-sacs fuse together, not from the suppuration of their walls, but from slow, non-inflammatory degeneration. This process may go on throughout both lungs, or one lung or even a part of a lung may be more particularly involved. Sometimes this fusion proceeds to the formation of air-spaces as large as the end of the thumb, and, in spite of their size, these air-spaces have very little function in respiration. Meantime the capillaries of the lung become obstructed because of the pressure upon them by the air-spaces, and also from disease of the vessel-walls. In consequence of this obstruction to the free flow of blood through the lungs, the right side of the heart becomes distended, and, later, the viscera generally become engorged with venous blood. Thus there results passive congestion of the liver, kidneys, stomach, and intestines, while the extremities are blue and the lips livid. The lack of oxygen gives rises to numerous changes throughout the body, and the fibroid degeneration that occurred in the lungs primarily may often also be observed in the liver, kidneys, and various other organs.

The treatment for this condition, so far as drugs are concerned, I shall not mention. The child should receive appropriate medication for the asthma and bronchitis as they may occur. There is no medicinal treatment for emphysema. The pneumatic cabinet has been suggested, allowing the patient to breathe condensed air and expire into a partial vacuum. The result, however, is questionable. The child should lead a quiet life. Exercise only aggravates the difficulty, increases the tension on the right side of the heart, and leads to the train of symptoms depending on venous congestion.

## CLINICAL MEMORANDA.

### *GUNSHOT-INJURY OF THE BRAIN*[1]

***Involving the Left Third Frontal Convolution, without Aphasia.***

BY C. S. HOFFMAN, M.D.,
OF KEYSER, W. VA.

D. F., aged twenty-eight years, on the 22d day of October, 1894, while in a state of temporary melancholia, attempted to end his existence by shooting himself through the head. I saw him in a few minutes

[1] Read before the West Virginia State Medical Association, June 28, 1895.

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after he was shot. He was then sitting upright in a chair, with blood flowing from a wound in the left temple. He was pale, and evidently suffering from shock. His mind was dazed. He recognized me, however, called me by name, but was unable to tell correctly how he was hurt, or where he boarded, but when the name of the house at which he boarded was suggested he said yes, that was the place, and without any hesitancy distinctly mentioned the proprietor's name.

Examination revealed a pistolshot-wound in the left temple, into which I could introduce the end of my little finger. There was no paralysis. The man was able to walk with little assistance to his boarding-house, about one square distant. I had him put to bed, and cold applied to his head, thinking from the position and nature of the wound that he would soon join the majority. In two hours I saw him again. He still recognized me, called my name without any hesitancy, also recognized other persons in the room and called their names. His pulse and respiration were about normal. His condition up to this time was that of a person suffering from concussion instead of injury to the brain. There was still no paralysis. With my finger and probe I detected loose bone on the inside of the skull, but I was unable to locate the ball. About a teaspoonful of brain-substance had oozed from the wound. Dr. Spear, of Cumberland, now saw the case with me. We decided upon an operation. Accordingly, as soon as everything could be made ready the patient was chloroformed, and with the assistance of Dr. Spear, of Cumberland, and Dr. Hall, of Keyser, I enlarged the wound in the scalp and exposed the skull. There was almost a round hole in the external table of the skull, but the inner table was badly broken, and some of the fragments of bone were loose and driven in the brain, while others were partially attached to the skull and dura mater, their free rough edges being turned in upon the brain. These fragments were all removed, and the edges of the skull smoothed off. Search was made for the ball, but it could not be located, although I passed a probe four inches into what I supposed was the track of the ball, and also passed my little finger in, but without success. The wound was cleansed, dried with iodoform-gauze, and then a piece of iodoform-gauze was passed well into wound for drainage. The wound was dressed antiseptically, but suppuration took place in the scalp-wound, and the dressing had to be changed every day. The wound healed by granulation. There was no appreciable pus from the interior of the skull.

The patient remained under my care from October 22d, the time of the accident, until November 15th, in all twenty-four days. The highest temperature was 101°. This occurred on the fourth, sixth, and twelfth days after the injury. The highest pulse-record was 106, but the average was about 80. On and after the thirteenth day from the injury pulse and temperature remained normal. The patient was very restless for the first three days, requiring at times restraint to keep him in bed. For this morphin sulphate, chloral hydrate, and potassium bromid were given with good effect. After this time the patient became somnolent, passing urine and feces in bed. He was, however, easily awakened to take milk. Five days after the injury he could give intelligent answers to some questions. About a week before he left my care he could sit up, and began to take interest in what was passing in the room, and would usually tell when he wanted to pass urine and feces.

The place of the wound is readily discernible. While ossification seems to have occurred, there is a depression where the ball entered. The entrance of the ball, as can be seen by this depression, is about one-and-a-half inches posterior to the external angle of the left orbit, and about three-quarters of an inch above a horizontal line passing through the external angle of this orbit, making the wound very near the center of the temple, and directly over the part localized as the center of speech. The course of the ball was slightly upward and backward. In connection with the wound in the left temple it is to be noted that the man is left-handed. The pistol with which the wound was inflicted is a thirty-two caliber. I here show you six pieces of bone, and regret that I have either lost or mislaid the original ones. These, I feel certain, are about the size of the pieces removed, and will give an idea of the extent of the injury to the skull. Laying these bones side by side they will cover at least one square inch of surface. The pistol was evidently held very close against the head, as the hair was burned, but there were scarcely any powder-stains in the skin. Considerable powder-stain was, however, present in the bone and brain.

It is not my purpose to enter into a general history or a discussion of the treatment of gunshot-injury of the brain, as this is accessible through our text-books on the subject; but there are some very interesting features of this case to which I desire especially to direct attention, viz.: That the prognosis in this case, without an operation and the removal of the pieces of broken bone, must have been fatal; that the result would indicate that it was good surgery not to make too great an effort to extract the ball; that a man can shoot himself in such a vital spot as this and not be instantly killed; that the man was not even rendered wholly unconscious; that he made an excellent recovery, and now, at the expiration of eight months, is apparently well, and able to transact business and do bodily labor, although he still carries the bullet in his brain, and lost at least a tablespoonful of brain-matter; that there was no paralysis of any member of the body; that there was no evidence of aphasia, although the ball must have injured the third left frontal convolution of the brain, and in our efforts to remove the pieces of bone we also must have injured this convolution. This is a matter of interest to which I would especially call attention. It is true that while the man was suffering from the acute inflammatory effects of the traumatism he could not answer intelligently, but there was no time when he was conscious that he had any difficulty in pronouncing words or forming sentences. At times he was a little absent-minded. Before he was injured he was always manifesting an uneasiness about succeeding in life. Since the accident I think he shows less of this disposition.

In the great majority of mankind the center of speech is located in the left hemisphere of the cerebrum and in the third frontal convolution; still there are exceptions, as cases have been observed of left-handed persons who lost their power of speech after a lesion of the right hemisphere. As this man is left-handed, it is fair to ask, May not the center of speech in this man be located on the right side, and may not this explain the absence of aphasia?

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## TWO CASES OF BILATERAL CASTRATION FOR ENLARGED PROSTATE.

BY A. H. LEVINGS, M.D.,
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WHILE the subject of castration for enlargement of the prostate is exciting so much discussion, the report of the following cases may not be without interest:

CASE I.—J. B., aged seventy-seven years, was obliged to resort to the use of the catheter eighteen years ago, on account of an enlarged prostate and the consequent inability to pass his urine. The catheter was used for thirteen years, during which time he was never able to pass urine without its aid. During the last year of his catheter-life increasing difficulty was experienced in passing the catheter, until it finally became impossible to enter the bladder with any instrument. At this juncture—five years ago—a suprapubic cystotomy was performed and an artificial urethra established. For three or four years immediately following this operation the condition of the patient seemed satisfactory. Then he commenced to complain much of pain; his cystitis grew worse, and repeated rectal examination established the fact that the prostate was constantly increasing in size. At this time I advised castration, which was performed at the Presbyterian Hospital, May 14, 1895. At the time of operation the prostate was as large as a cocoanut.

On June 20th, thirty-six days afterward, Mr. B. passed a small stream of urine by the urethra, the first time for eighteen years. He has continued to do this every day since, with increasing size of stream, and for the past week he has only used his suprapubic urethra night and morning, when the bladder was irrigated. As nearly as I am able to determine by rectal examination, the prostate has diminished in size about one-half, the cystitis is much improved, and the severe pains are practically gone.

CASE II.—Mr. A., aged fifty-one years, entered the Presbyterian Hospital June 18, 1895, and gave the following history: On and after December 8, 1894, he was unable to pass his urine without the aid of a catheter. About the middle of December the right testicle became inflamed and suppurated; two weeks thereafter the left testicle also became inflamed and suppurated. He had been confined to his house constantly, and to his bed the major part of the time after the first attack in December, in consequence of the severe pain both in the testicles and bladder.

When Mr. A. entered the hospital he was much emaciated, and both testicles were enlarged, indurated, and nodular. On the right side of the scrotum were two fistulous tracts, and on the left one discharging pus. There were two ounces of residual urine, which was ammoniacal and contained a considerable quantity of pus. Both lobes of the prostate were very decidedly enlarged. The inflammation of the testicles was evidently tuberculous, and this fact, considered in connection with his enlarged prostate, made me advise castration, which was agreed to and performed June 23d. Recovery was uninterrupted. In two weeks the man was walking about the hospital, almost wholly free from pain; the urine had become acid and almost clear; a catheter was no longer necessary; and the residual urine had entirely disappeared.

On July 18th, by rectal examination, the left prostatic lobe was scarcely to be felt, while the right was much reduced in size. The patient was discharged in excellent condition.

Although I undertook both of these operations with some degree of misgiving as to the ultimate good to be attained, the results have been most satisfactory both to the patients and to myself. The decided improvement in the cystitis, the disappearance of the pain, the ability of the one again to pass urine by the urethra after eighteen years of absolute cessation, and the disappearance of the residual urine in the other, with atrophy of the prostate, are conditions concerning which I believe there can be no doubt.

It would seem that after castrating thousands upon thousands of women in the prime of life, often, I fear, upon the slightest pretext, it is hardly consistent to hold up our hands in horror at the idea of castrating some men at an advanced age for the relief of an otherwise incurable and most distressing condition, if the operation should offer a reasonable hope for a permanent cure.

459 VAN BUREN STREET.

## VESICO-VAGINAL FISTULA—SUTURE OF BLADDER WITH CATGUT.

BY J. J. BROWNSON, M.D.,
OF DUBUQUE, IOWA.

MRS. D. L. F., aged thirty-two years, the mother of four children, came under my care to be operated upon for a vesico-vaginal fistula. Her history was good, with the exception of some difficulty in micturition during childhood, the precise nature of which I was unable to learn. The story of the case as narrated by the patient is as follows: About two years ago she lived upon a farm in Minnesota, and her home was about ten miles from the nearest village. While residing at that place she was confined with her fourth child. The labor passed all right, but she had retention of urine following it. The physician in attendance, after visiting her for several days for the purpose of using the catheter, said that he would be unable to attend her any longer, and, as she would not or could not use the instrument herself, he made an opening from the vagina into the bladder through which the urine drained away.

The constant annoyance of the infirmity caused the woman to seek relief. Accordingly she was sent to the Mercy Hospital in this city to be prepared for operation.

Upon examination the urethra was found patulous and seemed natural. There was a fistula about three-fourths of an inch long in the vesico-vaginal septum. The uterus and vagina were otherwise normal.

The patient was taken to the operating-room, and, with the assistance of Drs. Boothby, McCarthy, and A. Staples, steps were taken to close the opening. The woman was placed in the usual position and a sound passed into the bladder up to the fistula to serve as a guide, while the tissues of the vagina and bladder were pared funnel-shaped so as to make a good-sized denuded surface on the vaginal side. When all was prepared it occurred to me that it would be a good idea to unite the mucous membrane of the bladder with catgut, and

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this was done by means of a continuous suture. The tissues of the vagina were then sutured together with four silver wires. Having no sigmoid catheter a soft-rubber one was fastened in the bladder, and the vagina was packed with iodoform-gauze.

The after-treatment of the case progressed favorably until the third night, when the catheter slipped out. On the next morning a pint of urine was drawn off and the catheter reinserted; but it did not stay in well; so after the first week the retention of the instrument was abandoned altogether and the water drawn twice a day.

On the eighth day the urine was tinged with blood and remained so for two days. I was unable to account for this unless it was from the disintegration of the catgut stitches.

Nothing unusual presented itself from this time on. At the end of the third week the silver wires were removed. The wound had healed solidly. Not a drop of urine had escaped. In fact, after the stitches were removed it was difficult to see the exact site of the closure.

The patient was at this time requested to urinate in the natural way, but she maintained that she could not. The catheter was accordingly passed for one week longer, when, as the woman again refused to attempt to micturate, a large glass dilator was introduced into the urethra and allowed to remain for several minutes. Following this she was able to pass water, and has not complained of any trouble since. She is at present in good health, and, as it is several years since the operation was performed, the relief may be considered as permanent.

Of course, one cannot form conclusions from one case, but I think the suture of the bladder with catgut is a good feature, for the reason that it forms a double joint, preventing leakage of urine, and thus giving the vaginal tissues opportunity for union, while the possible objection, that should any of the catgut remain unabsorbed a calculus might result, would not seem warranted by the outcome of this case.

## TOXICOLOGIC NOTE.

### *POISONING BY LYSOL.*

BY A. J. COMSTOCK, M.D.,
OF VENTURA, CALIFORNIA.

THE following facts in a case of accidental poisoning by lysol, occurring to one of my patients recently, are worthy of record:

The patient is a healthy woman, twenty-four years of age. Three days after her confinement she was given, by mistake of her nurse, one-and-a-half tablespoonfuls (fully six drams) of lysol, instead of the laxative ordered. The drug was taken early in the morning upon an entirely empty stomach, but was diluted with two ounces of coffee. The woman was immediately seized with violent burning pain in the mouth, throat, and stomach. It was forty-five minutes before a physician reached her, and in the meantime nothing in the way of a diluent or emetic had been administered, and vomiting had not occurred. Not being in town myself, another physician was called. He reached the patient forty-five minutes after the accident and at once administered oils, eggs, diluents, and emetics. She was then in a partially comatose state, very pale, perspiring profusely, and with the muscular system in a state of complete relaxation. Respiration was slow and shallow and the pulse imperceptible. As emesis did not readily occur, the physician returned to his office for a stomach-pump, but upon his return found the woman vomiting freely. The poison had then been retained two hours and forty-five minutes. After the vomiting consciousness partially returned, but the patient remained very weak. I first saw her three hours after the poison had been swallowed. She was then still partially unconscious, with great muscular relaxation, a very weak and rapid pulse, and the pupils widely dilated. I at once administered another emetic (gr. xx of ipecac in powder) and large quantities of warm water, until free emesis occurred, twelve minutes afterward. The woman was then given small and frequently repeated doses of magnesium sulphate until free purgation was produced. The after-treatment consisted of flaxseed-tea, bismuth, and restricted diet. The subsequent gastritis was slight, but for forty-eight hours there was partial suppression of urine, with albumin present in large amount. The albumin disappeared on the fourth day and the secretion of urine became re-established. It is now a week since the accident and the patient is apparently fully convalescent.

## MEDICAL PROGRESS.

***Fracture of the Lower Cervical Spine, with Coma.***—BELL and EASTERBROOK (*Edinburgh Medical Journal*, July, 1895, p. 38) have reported the case of a laborer, thirty-one years old, who fell backward from the top of a loaded haycart, landing on the back of his head in a field. When found, lying on his back with his feet toward the cart, he was conscious and able to speak intelligently, complaining of pain between the shoulders, but was absolutely unable to move the trunk and limbs, with the exception of the shoulders. He remained in this condition for twenty-four hours, with slight twitchings of the shoulders and a considerable discharge like white of egg, stained with blood, from the mouth, independent of vomiting. He then became feverish and delirious, and in two or three hours lapsed into a state of apparent coma. Neither urine nor feces had been voided after the accident. Later there was incontinence of urine. The temperature rose to 106.5°, the pulse to 140, the respiration to 40 per minute. The patient gave vent to an occasional short cry, frowned slightly when the face was pinched, and made a faint effort to open the partially closed eyes when called loudly by name or when a bright light was held before him. There was complete loss of motion and sensation in the trunk and extremities; the face and neck were sensitive to touch and pain. Motor power was present in the muscles of the face and lower jaw, and in those of the neck connected with extraordinary respiration. The paralyzed muscles were flaccid. The superficial and deep reflexes were absent, with the exception of the cremasteric and conjunctival. The pupils were equal, markedly contracted, and non-reactive to light. There were also evanescent priapism, overflow incontinence of urine, relaxation of the anal sphincter, incontinence of feces, and a purely reflex deglutition. Lividity was easily



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induced by pressure, and the toes were slightly glossy. The respiration was diphragmatic, aided by the muscles of the neck. At each expiration there occurred protrusion of the upper part of the abdomen, an indrawing of the lower intercostal spaces, a dragging down of the larynx and root of the tongue, a dilatation of the alæ nasi, and a tilting up of the chin. The expiration was sudden and gasping, the upper part of the chest rising with a jerk. The urine contained a slight amount of albumin. As the man lay supine, with his head flexed upon the pillow, a prominence could be felt above the last cervical spine, pressure over which elicited a pained frown. The prominence disappeared when the patient was turned on his right side. On digital examination of the posterior laryngeal wall, a slight ridge was detected opposite the root of the tongue. Examination of the ocular fundi disclosed no abnormality. Despite treatment with extension, ice-bags, leeches, and inhalations of oxygen, the patient failed to rally. Upon post-mortem examination a thin layer of extravasated blood was found between the epicranial aponeurosis and the pericranium, especially marked between the occipital and left parietal eminences. A very small quantity of blood-stained fluid escaped from the foramen magnum in removing the brain. No gross lesion of skull or brain was present. The spine presented no deformity. On dissection an extravasation of blood in the soft parts behind the lower cervical spine was found. In the spinal canal an extradural extravasation of blood, extending from the foramen magnum to the sixth dorsal vertebra, was present, being most marked in the lower cervical region. The body of the seventh cervical vertebra was the seat of a comminuted fracture and crush, the spinal cord being firmly nipped by the lower fragment, which was overlapped anteriorly by the upper.

## THERAPEUTIC NOTES.

***The Treatment of Diphtheria with the Antitoxin.***—FÜRTH (*Münchener medicinische Wochenschrift*, 1895, No. 30, p. 689) reports the results obtained at the medical and surgical clinics at Freiburg in the treatment of 100 cases of diphtheria with the antitoxin between October 1, 1894, and June 5, 1895. During this period 115 cases came under observation. Of this number, fifteen were not treated with the antitoxin, two being received in a moribund condition, and the remaining thirteen from economic reasons. In all of the latter recovery ensued. Of the 100, bacteriologic examination was made in fifty-five, and diphtheria-bacilli found in fifty, rarely in pure culture but often associated with staphylococci and mostly with streptococci. In five cases diphtheria-bacilli were not found upon a single examination. In conjunction with the injection of the antitoxin other measures in usual employ at the clinics were not omitted. Thus, the air of the wards containing the severe cases was kept constantly moist by means of the steam-spray; local applications or insufflations of precipitated sulphur or of chinolinbenzyl rhodanate were made three or four times a day; children able to do so used potassium chlorate or potassium permanganate as a gargle, and inhaled frequently a solution of carbolic acid; an ice-collar was applied; bits of ice were swallowed when pain was present; and in cases of involvement of the nose irrigation of the nares with antiseptic solutions was practised. Among the 100 cases thus treated there were twelve deaths. The mortality from 1889 to 1894, with ordinary treatment, fluctuated between 31 and 49 per cent., averaging 39 per cent. The same average existed during the seven months of the year corresponding to the period during which the antitoxin was used. Forty-three of the 100 cases presented laryngeal involvement, and thirty-one required tracheotomy. Among the last number there were eleven deaths, 35.4 per cent. In previous years tracheotomy had been required in 46.2 per cent. of the cases, with a mortality of 70.4 per cent. The opinion is expressed that the antitoxin is a specific in the treatment of diphtheria with which no other therapeutic measure is to be compared.

***The Treatment of Electric Shock.***—The Berlin correspondent of the *Medical Press and Circular*, July 24, 1895, p. 84, quotes from the *Pharmazeutische Centralblatt* the following procedures to be adopted in cases of injury from powerful electric currents: The current should be shut off at once if the means are at hand, and the person called upon understands how to do it. If this cannot be done, care should be taken not to touch the injured person's body with the hand. If no India-rubber gloves are at hand, the body should be dragged away from the wires by grasping the clothing, or the coat should be taken off and folded (a dry cloth may be used for the purpose), when the injured person may be grasped through it and dragged away. When it is not possible to remove the injured person from the wires, that part of the body should be raised that is in contact with the earth or the wire from it, using the covered hand. This will break the current, and it will generally be possible then to get the body away. If this cannot be done, a dry cloth should be placed between the body and the ground, and then the body disentangled from the wires. If the body is freed from the wires, all the clothing should be removed from the neck and the injured person treated as one drowned. The mouth should be opened and the tongue covered with a cloth and grasped. The latter is pulled forward and gradually allowed to fall back. This movement should be repeated sixteen times a minute. Care should be taken that the root of the tongue is thoroughly moved. The bystanders should not be allowed to give the injured person spirit or wine.

***The Treatment of Insolation with Quinin*** is recommended by BINZ (*Deutsche Milit.-ärztliche Zeitschr.*, April, 1895; *Berliner klin. Wochenschr.*, No. 29, p. 643), both from theoretic considerations and from the favorable results obtained by Anglo-Indian physicians. The best preparation is the bichlorid, which appears in fine colorless crystals readily soluble in water. The solution is strongly acid, but when injected into the corium causes no pain. The solution should be of such concentration that a syringeful contains gr. 3¼. This dose may be frequently repeated.

℞.—Quininæ bichloridi . . . ℥ijss.

Solve in aquæ destillatæ ℥j. Filtra. The solution equals a volume of ℥x.

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## MAX NORDAU AND DEGENERATION.

Is it possible that in Max Nordau we have a real prophet calling to us in the wilderness, or have we only a fakir? These alternatives will be, and are being, answered each in the affirmative, for Nordau has at least the fortune of having caught the popular eye; the merit of having divided opinion; and, perhaps, may have the strength for yet founding a "school." In all these respects he is thoroughly up to date. There is enough of audacity and sensationalism in his views to meet even the demands of this "degenerate" age; enough of a spice of "mysticism" and obscurity in his criticism to keep him well abreast of all the symbolists galore; and enough of dogmatism and ferocity in his expression of opinions to put him well on a level with the egomaniacs. In other words, Max Nordau is, as he is so fond of describing others, somewhat *fin de siècle.*

But we take Max Nordau seriously—(a somewhat difficult thing to do in places)—and we think that we find in him some golden utterances as well as some obvious solecisms. The novelty—perhaps even the originality—of this writer consists in the fact that he has made a feint of devoting the methods and the data of the medical sciences, especially pathology and psychiatry, to the elucidation and correction of some of the prevailing tendencies and errors in art and literature. He has cast his book in the form of a medical treatise. The very boldness of this scheme has in a measure defeated its object, because it is evident, upon a close reading of the work, that neither the subject nor the author himself was yet ripe for such an enterprise. The grave defects of the scheme are, first, that the contemporary sciences of criticism and pathology have not yet advanced sufficiently to supply the necessary data; second, that they possibly never will advance thus far; third, that they have so little in common that they can play but little mutually into each other's hands; and, last, that Max Nordau, although he apparently has encyclopedic knowledge, has not yet attained that mastery of himself that would render him either a safe scientist or critic.

Let us consider these points. The science of criticism—if it is a science—is yet far from being established upon a satisfactory foundation. The best proof of this is found in the fact that in our present age glaring errors of taste and judgment in letters and art are exceedingly rampant. It is against these that Nordau wages incessant war. In a highly critical age such warfare would be uncalled for, because if criticism were a science, established upon secure foundations, as chemistry and astronomy are sciences, this ruck of contemporary literature would have been stifled in its birth. As chemistry and astronomy purify themselves constantly by rejecting error, so would literature if it had a science of criticism.

As for psychiatry, which is the branch of pathology upon which especially Nordau depends for his principles, it is obvious to all anthropologists that the time is yet far distant when this science will be able to dictate terms even to jurisprudence and sociology, much less to such a recondite subject as criticism. To attempt it now is premature; and the attempt must give Nordau's book the appearance of merely a pseudo-scientific treatise. The disguise cannot escape the penetrating eye of the student, and this is the gravest reproach that can be brought against Nordau.

The second defect of such a scheme is that it demands more than either of these sciences may ever be able to contribute. The purest ages in art and literature received no aid from either criticism or psychiatry. If the time ever comes when the cultivation of these humanities shall depend upon the warning voice of psychiatry, or even the support

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and defence of a scientific criticism, then the history of humanity must reverse itself. Criticism is no more productive than is psychiatry itself; both deal rather with aberrations from the normal type. They are themselves necessary evils. Even in its broadest sense, that in which criticism aims to point out both merits and defects, it has never yet proved itself able in a crisis to prevent the deterioration of literature. It did not do so in the critical senile periods of Greek, Roman, and Hebrew literatures. We do not say that it may never be able in the future to do this; we hope, on the contrary, that it may. But we deal with facts.

Again, criticism and psychiatry have little in common. In spite of Max Nordau, we do not believe that the deteriorated art and literature of the present day are the products exclusively of hysterics, neurasthenics, and paranoiacs. The attempt to prove that they are is the most astounding solecism of the season. In this thesis Nordau shows plainly the tendency of the extremists of the cult of Lombroso. He seizes upon the stigmata of hysteria and degeneration, which he thinks he finds in every line of every rhapsody of every poor devil poet and novelist on the continent of Europe, and pieces them together in a sort of symptomatology in order to make a diagnosis. The effect is sometimes striking, occasionally even convincing, but too often highly absurd. In other words, Nordau attempts to write a critique in the likeness of a monograph on insanity; he borrows the terms of psychiatry for the delineation of the literary characteristics of contemporary poets; he builds up a symptomatology in verse, a prognosis on quotations, and a therapeutics of denunciation. He does all this without seeing a patient, but only by reading his books; and then he seriously (but we suspect with his tongue in his cheek) dedicates his book to Lombroso and launches it upon the world. It does not seem to have occurred to him that he was simply following the method of Zola (whom he abhors), who claims that he consults the scientists in the preparation of his fictions.

The more conspicuous degenerates, whose cases are reported by Nordau, are Ruskin, Rossetti, Swinburne, Verlaine, Walt Whitman, Wagner, Tolstoi, and Zola—not to speak of one Nietzsche, whom nobody in this country knows, or is likely ever to know, much about, and who seems, from extracts supplied by Nordau, to have been a real lunatic. We by no means concede that all of these men are to be considered as abnormal. In fact, some of them are far above the average man; but taking Nordau's idea, the underlying defect of these "perverts," as nearly as we can put it in a single phrase for such diverse individualities, is that in one or more ways they represent the nineteenth century's disregard for and departure from all or many of the fixed rules and true standards which the history of mankind has established after infinite pains and progressive evolution as the normal types in art, literature, and philosophy. They are *atypical*. They have come, all of them, hailing the dawn of a new era; they affect to represent not a renaissance, but a new creation. They aim to bring forth new forms, because, as they claim, the old classic forms are dead. As a consequence we have the moonshine of Rossetti and the Preraphaelites, the verbiage of Swinburne, the rhetoric of John Ruskin, the grotesque lines of Whitman, the unceasing din of Wagner, the theosophy of Tolstoi, and "ibsenities" from Scandinavia, and obscenities from Paris. These, and their hosts of imitators, plagiarists, and claqueurs, fill the world with their noise, and constitute the culture of the end of the nineteenth century. They are all that we have—except the newspapers and the magazines, and the commonplaces of Mr. Howells!

This is all bad enough, but we do not see in it (except, perhaps, here and there in the utterances of some poor fool like Maeterlinck, who is by some chance still out of the asylum) the symptoms of the madness, and hysteria, and degeneracy of the whole generation. We do not believe, for that matter, in the madness of a whole generation. It requires a graduate of the school of Lombroso to see *that*. Science or history has never demonstrated such an instance yet in any period. We do not confuse literary deterioration with somatic alterations in the brain-cells. We adjudge, moreover, that it is an anomaly for a critic to mistake himself for an alienist when he analyzes a verse or annihilates a novel. Insanity is one thing; bad letters is another. Insanity can be measured by statistics; poor literature only with a yardstick. The poet, whose eye rolled in a fine frenzy, was not, we assure Nordau, ready to be certified.

Hence, we assume that Nordau has not yet attained that mastery of himself that would make him either a sound scientist or a safe critic. He has confused two fields of intellectual activity—*i. e.*, psychiatry and criticism—which have but little in

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common and which are not subject to the same methods of treatment. Therefore, he has himself departed from a normal type. In this he displays, as we have already intimated, the tendency of the extreme school of Lombroso. This school aims to establish upon scientific foundations the recognition of the *abnormal* man. It has, heretofore, confined itself mainly to the fields of criminology and psychiatry. It has remained for Nordau to attempt to carry its methods into the field of literary criticism. We doubt whether this attempt will gain permanent recognition.

We have, nevertheless, found much in Nordau that has impressed us deeply. He is better as a critic than as an alienist, and we wish sincerely that he had confined the exercise of his pre-eminent genius to the field in which it is fitted for its best endeavors, and had not made his incursions so boldly, even recklessly, into that of mental therapeutics. He recognizes more accurately than any observer with whom we are acquainted some of the radical defects in the spurious culture of the present day. This is an aberrant time and generation; wandering not so much from the technical standard of mental health as from the typical forms in art and letters, without which we believe there is no health in them. The old classic types are not lightly to be ignored. As Nature has laid down her archetypes (for instance, the vertebrate skeleton), which she modifies in countless ways but never abandons, so the unconscious energies and instinctive wisdom of mankind, in their laborious development, have evolved the invaluable archetypes of art and literature. To depart from them in the one case as in the other is not an evidence of health or originality, but is simply a departure from the norm. This fundamental truth, which underlies all true criticism, is, after all, the keynote to Nordau's book. If he had not attempted to demonstrate the forced analogies between literary deterioration and mental degeneration, we think that he would have produced a more symmetrical work. But in that case his work would not have been a true product of the close of the nineteenth century—because Nordau's book itself, as we have said, is somewhat *fin de siècle*.

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## *INACCURACY IN SCIENTIFIC TERMS.*

THE July number of the *American Journal of Pharmacy* contains some strictures upon the carelessness with which medical writers use chemic terms, and the ignorance displayed concerning even the simpler data of chemistry. The criticism relates especially to a paper on "Calomel," read at the last meeting of the American Medical Association, and is justified not only by the quotations from the paper, but also by the ordinary course of medical literature. Much of this carelessness or ignorance arises from the indifference that medical students are disposed to show toward theoretic instruction, but much also arises from the great complexity of chemistry and its rapid expansion, so that it is difficult, even for professional chemists, to maintain a comprehensive knowledge of the subject. It is, however, to editors and secretaries that we should look for the correction of such errors. We cannot expect the mass of the medical profession to be experts in the use of the terminology of chemistry, physics, or biology, but medical journals and societies that pretend to exercise literary authority should regard supervision of the scientific terms as of equal importance with the supervision of the grammar. There is no more justification for the term "oxid of calomel"—which occurs in the report of the discussion of the paper in question—than for the phrase "healthy drink," which we notice in the *Journal of Pharmacy* on the page opposite to that on which the critical editorial appears.

It is just by preventing the slipshod use of words and by securing consistency in terminology that editors fulfil their highest and most important function. In conducting a scientific journal it is not expected that the editor will exercise a very strict control over the quality of contributions from the point of view of their literary style or probable popularity, as would be done by the editor of a newspaper or magazine. Almost any issue of a medical journal will show a collection of articles of very unequal merit and moment, but contributors should be expected to conform to certain standards of spelling and nomenclature, and it is the editor's duty to see that the standards are maintained.

Some months ago a prominent medical journal discussed editorially some statistics upon the use of well-known drugs, and referred to "iodide of potash." This expression is a common error among medical men, and when a chemist ventures to criticise it the reply generally is that nomenclature in chemistry changes so frequently that it is impossible for those who are not chemists to keep up with it. It is true that some changes have been made in chemic

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terms since the system was founded, but apart from those that have been additive, that is, due to the expansion of the science, very few have been made, and these have been decidedly in the direction of simplicity and precision, qualities that should recommend them to all intelligent persons. Concerning such expressions as "iodide of potash," it may be said that they have not even antiquity in their favor. It is not likely that they were ever used by chemists. In the early part of this century—in Chemistry's "hot youth, when George III was king"—an erroneous view as to the nature of salts led to the use of such phrases as "hydriodate of potash," "muriate of potash," a terminology that survives, in permissible use, in "muriate of ammonia," but the phrase "iodide of potash" does not stand for any theory, past or present.

This question is one not merely of words or of defence of certain methods of spelling. Precision in scientific terms is the basis of precision in scientific ideas, and to this end minute accuracy in phraseology is essential. In a recent State examination the applicants were asked to describe the alkaloid "strychnia." It may be hypercritical to say that this word is obsolete, but, as a term for a substance designated by chemists by a slightly different name, the word *strychnia* was made current by the *Pharmacopeia*, but changed by the terminology of the *Pharmacopeia* of 1880 to *strychnina*, and careful writers will either use the strict chemic term *strychnin* or the approved pharmaceutic term *strychnina*. Similarly, another question asked at the same examination was, "How would you test for arsenic?" There may be some doubt as to what is here meant by arsenic. The term applies to both the free element and to one of its oxids, and the preferable test for one is not the preferable test for the other. Moreover, assuming, as is probable, that the common oxid is meant, the question may arise under what conditions is the test to be made? The recognition of this body in a sample of vermin-poison, for instance, would require a different method than would be used in detecting the same body in vomited matter or in the stomach.

## EDITORIAL COMMENTS.

***Vital Statistics.***—The death-rate of Denver, Colorado, for the twelve months ending June 30, 1895, according to the report of the Denver City Bureau of Health, was 11.52 per 1000. This is a very low mortality, and, as the population on which the rate has been computed has been estimated from the Census of 1890, it is questionable if the figures are accurate.

The population of Denver in 1890 was 106,713. It is estimated for 1894 at 145,000, an increase in four years of 45 per cent. Chicago reckons its increase in the past four years at 55 per cent., while New York considers 22 per cent. a proper estimate, and Philadelphia is satisfied with 11 per cent. According to the estimated population Chicago has a death-rate of 15.24, the lowest of any city in the world with a population over 200,000.

The census of the United States and the police census are seldom accurate, and it does not require much change in the popuatlon to effect a decided change in the rate of deaths per 1000. In small towns the registry of births and deaths is usually faulty, and when Chicago annexed many of the surrounding suburbs it did not take into account the lax registration, while it did compute its death-rate on the total population.

The New England States have endeavored to establish a uniform system of vital statistics, and the secretaries of the Boards of Health of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut held a meeting last September at which it was decided to publish a summary of the vital statistics of these States. The first one (for the year 1892) has just been issued, and, while it is incomplete in many respects, it is the beginning of what we hope will be an international system of vital statistics. Only then will an accurate annual statement concerning the population, deaths, and births of the principal countries of the world be possible and forthcoming.

The New England summary will be published only every five years, and, unfortunately, will consider the statistics of a year, antedating the report three years. The summary contains numerous interesting features. We find that the number of births per thousand exceeds the number of deaths by five, whereas in European countries, with the exception of France and Ireland, 10 and 11 per 1000 is the average excess of births over deaths. These results, however, cannot be viewed too critically, as in many countries, and especially in America, the births are not registered with as great accuracy as the deaths.

In England the parish registry and in Germany the strict police census make the returns of births more certain and more reliable, but in our own large cities, and in the smaller towns where no health-boards exist, the number of births registered falls largely short of the actual number of children born. The death-rate for 1892 in the New England States was 19.9 per cent.; 19.71 per cent. of the deaths occurred in children under one year of age, while 1.35 per cent. were in persons between ninety and one-hundred years of age. Pulmonary tuberculosis caused 10 per cent. of the deaths, or 21.8 deaths among every 10,000 living persons. Diseases of the circulatory system caused 16.17 deaths in every 10,000 living, while pneumonia, bronchitis, and influenza combined were responsible for 16 per cent. of all the deaths, or 34.7 in every 10,000 of the population.

The data on marriages and divorces are valuable from a sociologic point of view, while the study of the statistics of cities, as compared with that of the statistics of the rural districts, is a feature not yet well investigated. If the rural towns have a death-rate of 18.72 per 1000, and

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the cities one of 21.01, then every additional suburban district that a city acquires will tend to diminish its general death-rate.

Vital statistics form the basis of public hygiene. Without accurate reports we can have no idea of the influence of sanitary measures on the social health or of the results of unhygienic conditions. Although after we have the figures we may juggle with them to suit our particular theory, nevertheless the figures themselves are not to blame, and are the bricks with which we must build if we would build at all. How necessary is it, therefore, that every scientific, and even unscientific, medical man should accurately make the returns required by a city's bureau of statistics, and where no such bureau exists should see to it that one is established.

***Enforcing the Law.***—Our most esteemed contemporary, the *Philadelphia Polyclinic*, asks whether it is or is not worth while, if we have a Code, to compel conformity with its requirements upon the part of those who need such compulsion? The question answers itself; of course it is "worth while," and it should be done, but how is the compulsion to be brought about? If our friend will tell us how it is to be done, we shall gladly cry, Bravo and amen! The machinery does not exist—or, if you will, the machinery exists, but there is no steam in the boiler. Censors do not act; it is impossible to incense them. Bring to their notice the most flagrant violation of the Code (the organic law of the Society) on the part of one of their members, and you are advised that you would "better not raise a fuss." In democracies how can a law be executed that the majority of the subjects do not wish executed? Surely there are no worse code-smashers than some of the highest executive officers of some large medical societies having the Code as their accepted law. Therefore it strikes us that we *did* answer "the main point of the objection" made by our correspondent in our issue of July 20th.

Suppose "penalties are attached," who is to execute the penalties? Penalties are at present attached—the only possible one that is desired or desirable—the penalty of expulsion of the violator from societary membership. But whoever heard of the expulsion of any one of the thousand code-smashers and law-breakers that infest and even officer many medical societies? A few expulsions on the part of every society in the land would at once make a revolution in professional opinion and practice exactly like that effected by the police-commissioners of New York City. But to put this steam in the boiler, thus to give vitality and force to the dead laws, constitutions, and rules of medical societies, their members and censors and officers must desire and resolve to execute the laws. At present they give no evidence that they so desire and so resolve. Ever and again down comes the question to one of personality. These men must be differently minded men. All reform, all progress begins and ends in individual character, in ideas and sentiments of personal dignity and honor, in the silent resolve to do one's own duty, to be true, and so far as possible to realize in daily life these ideals and sentiments. No one can doubt that such legacies of preceding generations, as codes, Bibles, laws, customs, and institutions—the concrete incarnations and products of human experience—are of great value in shaping present conduct and present growth. But we are all democrats and the animus of democracy—of much democracy—is to fling to the dogs the crystallized experience of the past, and to relearn it by other experience. And that is the weakness of the democratic idea.

It is characteristic of the upstart impertinence of conceited jackanapes to think they are wiser than their fathers or than all their fathers combined, and with headstrong folly to deny the validity of past experience. Perhaps they will one of these days come back from their codelessness, breedinglessness, godlessness, and "riotous living," in a very meek attitude of mind, having learned that their ancestors were not such fools as the descendants have just proved themselves to be. But as to penalty, the only one is exclusion from societies, and at present it seems that this cannot be effected. A man will hardly vote to exclude himself—a man cannot banish his own shadow. About all we can for the time expect is that we may keep the law standing (it is, even dead, an instigator of the tribute of the hyprocrisy that vice pays to virtue), and one day the anarchists who agreed to smash codes and remake the universe will learn that among themselves and for their own self-protection they have to re-enact the identical laws they smashed in starting their madcap civilization. In the meantime, whether to prevent the abrogation of the Code or to carry out its provisions energetically will depend solely upon the personal character of individual members of the profession and of individual societies. To form right character is the work of each and all of us and of an indefinite future.

***Antivivisection for Children.***—It strikes us that of all men physicians should be foremost and most emphatic in their denunciation of vivisection in the public schools or in any schools except those for adults and those especially devoting themselves to medical or biologic science. The matter would hardly seem to need argumentation. Every right-minded person must know, and doubtless must painfully remember in his own case, how callous children are to suffering and even how verily diabolic they often are as tormentors of animals over which they have power. It would also seem perfectly plain that the practice of vivisection before or by such highly imitative beings would have one certain effect: to increase enormously the already thoughtlessly or consciously cruel tendencies of their natures. "Appetite grows by eating." In medieval times the great gala days were the days of *auto da fé*. Gay cavaliers and gay ladies flirted and laughed for hours before men slowly being burned to death. They were no more intentionally or really cruel than boys to-day who pour coal-oil over dogs and burn them to death.

Would vivisection in public schools have other effects more than compensatory for the evil? Clearly and decidedly not. In the first place, dissection and anatomy and the advanced physiology to be gained by vivisection are not fit studies for the child-mind, but are plainly adapted and adaptable only to a maturer age, and for those preparing to become physicians or specialists. The child-mind is not by its very nature analytic, and any attempt to force it into analytic studies before a riper season is squarely contrary to pedagogic science. It is not only against the child's nature and bound to prove unsuccessful, but, if possible, it would not be desirable. We need to teach the young mind the beauty of life, not

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the analysis of death. In educational methods we are at last fairly emerging from the barbarism of the study of dead things by dead methods and by dead-alive teachers. Do not let us encourage any such reversion to the barbarism of medievalism, as turning the kindergarten, that divine promise of a future civilization, into a miniature dissection-room or laboratory for experimental physiology. Moreover, in the interests of physiology, of medicine, and of science itself, we should protest against such physiology as would be taught in the public schools by the present-day (or promised) public school-teacher. *Gott bewahr!*

We said that physicians should be particularly enthusiastic in opposing the practice of vivisection-experiments before children. And why? First, because physicians generally are the kindest-hearted of men; the great body of the profession detest the excesses of the vivisection-mania that have at times, and sometimes justly, been charged to medical science. The great body of the profession are by no means anti-antivivisectionists, and are little inclined to clap the capers of such extremists, because these do harm to the nobler cause of scientific vivisection for laudable purposes by laudable methods—a cause that every genuinely scientific man has at heart. And precisely because he has this cause at heart, he is not minded to kick up a fuss with a lot of foolish old women and reverend sentimentalists every time a cat jumps over a wall. One who is really interested in science does not try to arouse antipathy to the profession of medicine by vivisection-somersaults in the market-place. He attempts to teach kindly even the worst sentimentalists, and to instruct them patiently in the ways and purposes of true science. We have already had entirely too much cantankerous opposition, extremism, and prejudice aroused in the popular mind against us and against vivisection by some of our equally silly extremism.

***The Nurse, the Nostrum-advertiser, and the Puzzle-bribe.***—We have long wondered why it was that the sympathy of the nurse had not been exploited by the lynx-eyed professional advertiser. Surely her experience with the sick should have made her an expert judge of the value and physiologic action of drugs, and her testimonials should alternate in all circulars hereafter with those of the gullible D.D.'s and the purchasable M.D.'s. Perhaps the nurses during the long "night-watches," viewing the worthlessness of the treatment of the regular physician, might by the glowing puffs and testimonials be prevailed upon to give the dying patient antisicknia or contramorbin, and thus save his life, much to the glory of the scientific layman too "broad-minded" to divulge his precious secret. At last one of the broad-gauged gentlemen has struck the vein, the geologic one, the gold-stratum, and sends his circular to all the nurses. It begins thus:

"In your vocation as nurse you, no doubt, often are in want of some little thing to entertain either yourself or your patient. At times it is difficult to keep awake without something to engage one's thoughts, especially during the night-watches. We have obtained several puzzles that have proved useful in entertaining people at social gatherings and at odd moments. We believe that you could make good use of them in the homes you visit.

"We shall be pleased to send you two of our best puzzles if you will kindly acknowledge having received the trial box of ——— we have mailed to you and will try the remedy, in case you are subject to headache, or give it to some one who will try it. One of the puzzles referred to is almost infinite in its possible combinations, and does not lose its interest after having been solved one way.

"The merits of ——— have been acknowledged by scores of physicians. One of them recently said that he used ——— with great benefit in the treatment of a lady who could not take one of the safest coal-tar products because it depressed the action of the heart. ——— afforded the desired relief without causing any depression. In view of your calling and probable familiarity with the remedies of this class, we believe you will appreciate and esteem ———."

***The U. S. Marine-hospital Service.***—The report of the Supervising Surgeon-General of the Marine-hospital Service of the United States for the year ending June 30, 1893, in two volumes, recently issued, contains some interesting statistics relating to the diseases that affect the seamen under the charge of the department. The service is divided into geographic districts. There were treated in hospitals under the supervision of the medical officers 14,857 patients. Among these there were 487 deaths (3.21 per cent.). The average number of days' relief given each patient was 26.5. There were treated in the dispensary and office 38,460 cases

As bearing upon the frequency of gonorrhea among this and similar classes, it appears that of 53,317 patients who applied for medical relief 4600 were affected with gonorrhea, 9 per cent. of the whole number. Forty-two-hundred-and-sixty-seven had secondary syphilis and 1805 were treated for ulcer of the penis. Only 250 of the patients were treated for valvular disease of the heart.

Of the 3070 applicants for admission into the marine service as seamen, pilots, and officers, 121 were rejected for physical disability. There were 43 rejections for color-blindness; only 7 for valvular disease of the heart; 4 for pulmonary tuberculosis; and 23 for genito-urinary troubles; gonorrhea causing 4 rejections and ulcer of the penis 8.

The frequent presence of venereal disease among sailors has always been recognized, but that so large a percentage should be afflicted would seem to demand some measures of prevention or suppression. If gonorrhea in the applicant is sufficient cause for rejection, it would seem that repeated attacks of this disease might warrant expulsion from the service.

The evil effects of gonorrhea and its transmissibility should serve to bring about some restrictive laws, and punishment of the affected individual would probably do more good than the licensing of prostitution with its supposed hygienic regulations.

Of 35 candidates who presented themselves for examination for admission into the medical corps, only 3 received the required grade-mark of 80 per cent.

***Sunlight as a Germicide.***—That certain members of the human species "love darkness rather than light" has long been well known, but that this same preference extended into the plant-world is a more recent discovery. The saprophytic and parasitic bacteria cannot bear sunlight. Like all other evil-doers, they are sneaks and cowards. Even such a ferocious and merciless cut-

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throat as the *Bacillus anthracis*, who can invade almost any organic tissue, cannot manage to flourish in the sunlight. Some recent experiments of Marshall Ward's have shown this very prettily. A pure culture of the bacillus was grown upon a plate of glass to which sunlight was admitted through the openings of a stencil-letter, and after twenty-four hours of incubation the shape of the letter was clearly outlined upon the plate. Upon the parts to which the light had access, all growth was stopped, except that after several days' incubation a few feeble colonies appeared scattered over the illuminated area. The light was then decomposed and other experiments tried, which resulted in showing that the red, orange, yellow, and true-green rays exerted very little bactericidal effect, which was produced almost entirely by the blue and blue-violet rays. This revelation will, no doubt, delight our "blue-glass" friends. The same effect has been known for some time to be produced upon other pathogenic germs, notably the typhoid and Klebs-Loeffler bacilli, by sunlight. Indeed, it has been suggested that these organisms might be attenuated for inoculation-purposes by longer or shorter exposures. All of this simply confirms the oft-enunciated conviction that sunshine is "the one thing needful," the true "greatest thing in the world." We should insist that every living-room be sunlit, and "*Licht, mehr Licht*," physical as well as mental, should be our constant cry.

*The Index Medicus.*—There seems reason to hope that the *Index Medicus* will be revived, but whether it will or not will depend upon the response of the medical profession in the present emergency. In a letter to the Resident Librarian of the Royal Medical and Chirurgical Society of London, on the subject of the publication of the *Index*, Dr. John S. Billings states that "the cost of producing the work is about $4800 per annum, but as the amount of medical literature is increasing it is safest to put it at $5000. It is proposed to try to get 200 subscriptions at $25 each." It is estimated that 120 subscriptions can be obtained in the United States; sixty in Great Britain, and twenty in France and Germany. "Only 202 copies will be printed, no exchanges will be made, and there will be no advertisements. The subscriptions are to be paid in advance for one year to either of the undersigned (Dr. John S. Billings and Dr. Robert Fletcher). When 200 subscriptions have been received the list will close and the work will commence. It is thought that the first number may appear in November. If by December 1st the 200 subscriptions have not been obtained, the money then received will be returned to the subscribers, and the attempt will be abandoned." Surely, there should be no difficulty in putting into effect this proposition. Having been made to realize what the loss of the *Index* to scientific medicine would mean the response should be immediate and unequivocal.

*Dr. Roberts Bartholow.*—As there have appeared recently in several journals utterly unfounded references to the ill-health of this distinguished clinician and therapeutist, we take occasion to repeat the statement already made in these columns that Dr. Bartholow is in excellent health and is engaged in his professional duties with his accustomed zeal and vigor.

# CORRESPONDENCE.

## LONDON LETTER.

*The Registration of Midwives—Honors for the Medical Profession—The Queen and Her Resident Physicians—The Death of Huxley—The Late D. Wilhelm Meyer—The Testimonial to W. G. Grace—Scientific Progress.*

THE question that excites most interest in the medical profession here at present is the proposed registration of midwives. A bill making such registration compulsory has recently been exercising the august intellects of hereditary legislators in the House of Lords, and seemed in a fair way to become a law, when the killing frost of the dissolution nipped its root. As things now are any woman can call herself a midwife in this country and play the part of Lucina among her sisters in their hour of travail without any guarantee that she knows more of the obstetric art than "My Uncle Toby." The results of this state of things among the poor may easily be imagined. To say nothing of frightful injuries caused by their active or passive ignorance, the dirty and often drunken women who act as midwives are always likely instruments for the distribution of puerperal sepsis. Darker things, such as abortion-mongering and child-murder, are hinted at. That such things are done is certain, but our midwives as a class, fortunately, have too little knowledge for the safe practice of crime. The fact that the English law does not require that still-births should be registered, however, makes it easy for unscrupulous persons to assist Nature in the elimination of superfluous infants.

The London Obstetrical Society has for years striven to the best of its power to remedy the evils that have been referred to by holding examinations of women wishing to act as midwives and granting certificates to those coming up to the required standard of knowledge. The movement for the registration of midwives, which is intended to be a further step in the direction of securing poor women against incompetent midwives, has the active support of the President of the Obstetrical Society, Dr. Champneys, of Sir John Williams, a past President and the leader of the obstetric branch of the medical profession in this country, and of the majority of English obstetricians. There is considerable opposition to it, however, in the body of the profession, as is proved by the fact that many branches of the British Medical Association have passed resolutions strongly disapproving of the proposed measure. It would perhaps be unjust to say that this opposition is prompted solely by sordid motives, but it is impossible to deny that the feeling of the profession in the matter has been fanned from one of "benevolent neutrality" to more or less active hostility by the persevering denunciations of a band of agitators (in which the Hibernian element is conspicuous), who make no secret of their determination to put every obstacle in the way of the betterment of midwives, which they profess to regard as the creation of a new order of qualified medical practitioners. To speak plainly, they are afraid of the competition of these women, and their objections to the registration of midwives resolve themselves into the *argumentum ad crumenam*. This attitude on the part of a profession, which is nothing if not philanthropic, is the reverse of edifying.

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It is some comfort to those among us who have the dignity of their calling at heart that the General Medical Council, which not long ago allowed itself to be misled by the clamor of a small but noisy faction into condemning the certificates issued to midwives by the London Obstetrical Society, has now (though somewhat grudgingly) approved of the principle of the bill. For the present, of course, the registration of midwives is not, in Gladstone's phrase, "within the sphere of practical politics," and the new government will for a time have its hands full of matters more important from a political point of view. The omens are, however, more favorable to the passing of such a measure than they were when the star of Lord Rosebery was in the ascendant. The Tories have not so many faddists in their ranks as the Liberals, and in matters concerning public health they have much more legislative backbone than their rivals.

When a government goes out in this country it throws a handful of titles and decorations among its supporters, as a parting guest "tips" the servants of the house he is leaving. The medical profession, which as a body has little or no political influence, does not usually come in for recognition on these occasions, but this time the "honor of Knighthood" has been conferred on two Dublin doctors, henceforth to be known as Sir Thornley Stoker and Sir Christopher Nixon. The distinction—such as it is—is no doubt intended as a sop to the political party (Home Rule) to which they belong, but both are of a professional standing that makes such an acknowledgment acceptable to their brethren. Sir Thornley Stoker is President of the Irish College of Surgeons, and is a brother of Mr. Bram Stoker, the *fidus Achates* of Henry Irving, and (if rumors lie not) the inspirer of that hirsute histrion's after-dinner eloquence and academic prolusions. Sir Christopher Nixon is equally eminent in the Irish Capital as a physician and as an amphitryon; in the words of an admiring compatriot, he is "a noice mahn and a noice-mannered mahn."

In connection with this subject of honors it may be mentioned that the Queen has "of her own mere motion" (as the royal style runs) made her resident physician, Dr. James Reid, a Knight Commander of the Most Honorable Order of the Bath. This may not sound a very exalted dignity to republican ears, but connoisseurs in such toys estimate the value of a decoration as bibliomaniacs do that of an old chap-book—by its rarity. From this point of view the cabalistic letters "K.C.B." appended to the name of a physician must be accounted very precious, for there are only four other members of the medical profession on the roll, viz.: Sir Henry Acland, Sir Rutherford Alcock, Sir William Flower, and Sir John Kirk. In none of these cases, however, has the honor been bestowed for purely professional distinction. Sir Henry Acland was for many years Regius Professor of Medicine in the University of Oxford, and took a prominent part in establishing the splendid museum of that ancient seat of learning. He is a type of the old stately race of academic dons, and a man of varied erudition, who is said by his friends to add some knowledge of medicine to his many intellectual accomplishments. Sir William Flower was for many years surgeon to the Middlesex Hospital, but it is as Director of the Natural History Museum that his title was given him. Sir Rutherford Alcock is one of the oldest members of the Royal College of Surgeons of England, but it was in the diplomatic service that he won his K.C.B. Sir John Kirk got his, not for medical work, but for his services as British Consul-General of Zanzibar.

One member of the medical profession, Sir William Jenner, holds the coveted distinction of Grand Cross of the Bath—that is to say, he is in the first class of that highly rarefied order among serene transparencies and other ethereal beings, but he is a man whom the Queen greatly delights to honor. Sir James Reid, who is forty-six years of age, is a Scotchman, a race that finds especial favor in her majesty's eyes. He was appointed to his present post in 1881, largely owing to the influence of the late John Brown, the Queen's highly privileged "gillie." He accompanies the Queen whereever she goes, and is always with the Court except for a fortnight in the spring and a week or two in the autumn, when he is allowed a brief holiday. Sir William Jenner, though he has retired from active practice, still exercises a general supervision over the Queen's health, and visits her once a fortnight when she is at Windsor or Balmoral.

Sir James Reid receives a very moderate salary, but he has a residence both in Buckingham Palace and at Windsor, and as matrimony is not among the privileges allowed him his expenses cannot be great. With all its apparent dignity, the position is not far removed from that of an upper servant, and the want of the ordinary stimuli to exertion must tend to make whatever stock of scientific knowledge one started with run to seed.

Sir James Reid's predecessor, Dr. Marshall, fell into a pitiable state of gibbering melancholia before he died, in consequence, it was believed, of the monotony and isolation, intellectual as well as social, of his life. He continued at his post for many years before it occurred to the Queen that he might possibly need a holiday. When the poor man did at last get his royal mistress' gracious consent to a brief respite from court-attendance, he was summoned back in a week or two because John Brown was indisposed. That autocrat of the backstairs would not trust his precious person in the hands of the late Dr. Wilson Fox, one of the first physicians of England, who, though intrusted by Sir William Jenner with the care of the sovereign's health, was not thought good enough for himself by her flunky. Dr. Marshall received a salary of £400 a year, and when after some fourteen years' faithful service it was raised to £500, he was given to understand that he should consider himself treated with especial liberality. When it was necessary to find a successor there were many candidates for the post, but when Sir William Jenner—of whom his worst enemy cannot say that he uses language to conceal his thought—had told them the plain, unvarnished truth about the appointment, how it was little better than living in a gilded prison; how the movements and actions of the unfortunate physician were hedged about with all sorts of vexatious restrictions; how he could go out of doors only when "Her Most Gracious" had gone for her daily drive; how his only society was gentlemen-in-waiting and maids of honor, fashionable fribbles and feeblings, whose minds were etiolated by the blighting air of a court, and who looked down upon him as an inferior; their vaulting ambition sought for something less prickly

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than a crown to exercise itself upon. One man who was induced to make a trial of the post resigned it after three months, and, when he was asked to stay, is reported to have replied that he would not do so for £10,000 a year. It should, however, be stated that Sir James Reid is in a different position from his predecessor, for he has the care of the earthly tenement of the Queen herself, as well as that of the commoner clay of her household. It is whispered that until lately she has not been an easy patient to manage, having been all her life given to defying the elements, to the grievous discomfort and not infrequently to the bodily detriment of her attendants. At last, however, she is beginning to feel that cruel age hath clawed her in his clutch, and this makes her more docile to the advice of her physicians.

In Huxley the medical profession in this country has lost the man of whom it had most reason to be proud. One of those who stood by his bedside throughout his long illness has told me that the philosopher was greater in his death even than in his books, adding with the emphasis of heartfelt conviction: "He was a grand man." It was characteristic of him that he joked with his physicians and with those about him to the very last. On one occasion when a medical oracle from London was rather aggressively jocose, Huxley said afterward that he had felt bound to respond, but that the effort had been too much for him. This little story has a moral for those physicians who think the sick-room is a place for the display of cheap wit; what is fun to them may be death to the patient. In his younger days Huxley was an assistant surgeon in the Royal Navy; a position which corresponded to that of surgeon's mate, as described by Smollett, was obtained after an examination somewhat on the lines of that passed by Roderick Random. Huxley was not qualified in the technical sense till years after he had left the Navy. He became M.R.C.S. in 1862, probably as a necessary preliminary to his being appointed Hunterian Professor of Comparative Anatomy. Afterward he was elected to the Fellowship. As bearing on the question of professional titles it may interest American readers to know that on Huxley being asked by a correspondent what was the correct manner of addressing him, replied that his visiting cards had never borne any other designation than "Mr. T. H. Huxley;" he added, however, that he did not particularly object to be styled "Professor," but he could not stand "Doctor." Yet he might have used the latter prefix with perfect propriety in the later years of his life, for besides his degrees of LL.D. and D.C.L. from Edinburgh, Oxford, and Cambridge, he was honorary M.D. of Würzburg. He died, as he had lived, an agnostic (to give him the denomination which he himself invented to describe his own mental attitude), but in obedience, it is said, to a wish expressed on his deathbed he was buried with the rites of the Church of England, beside a son who died in childhood.

Dr. Hans Wilhelm Meyer, of Copenhagen, who recently died of typhoid fever in that sink of unsanitary iniquity, Venice, was one of the few enlargers of the empire of medicine who have seen their discovery accepted as part of established scientific truth in their lifetime. Yet it is little more than twenty-five years ago since he described adenoid vegetations of the nasopharynx, and it was a considerable time before the affection came to be recognized by the profession in this country. Ten or twelve years ago the leading physician in London stated in my hearing that he had never heard of it, and even among specialists a knowledge of the existence of such growths was by no means common property at that time. A well-known otologist who was present at an operation for adenoid vegetations maintained in the most positive manner that the tissue removed was nothing but mucous membrane, and pretty plainly hinted that the whole business was a fraud. Another leading otologist, after vehemently denying their existence for years, suddenly found salvation in a somewhat mysterious manner. His conversion was as complete and almost as rapid as that of St. Paul, for after sitting at the feet of a laryngologic Gamaliel for a very short time, he came forward as an apostle of his new faith, which he preached with all the zeal of a discoverer. Both these men were among the elect, as regards rank and file of the profession; of the men who have been in practice over fifteen years, probably a very large proportion would be found who if they have ever heard of adenoid vegetations at all believe that they are mere products of what Tyndall called "the scientific use of the imagination" by specialists. Meyer had the appearance of a dissenting minister from a rural district, and Morell Mackenzie, who was very proud of his own manipulative dexterity, said after meeting him that one could see he was not an operator. Whether he was an operator or not, Meyer has been the means of brightening innumerable lives that would otherwise have been dark and useless.

Probably in no country but England would it occur to anyone to get up a subscription for a healthy adult male because he could strike a leather ball with a piece of wood oftener than most other people. The so-called "national testimonial" to W. G. Grace is a striking proof of the amazing gravity with which Englishmen treat cricket. Grace is better known to his countrymen than any statesman or soldier, artist or author, preacher or teacher that England can boast of; in popularity he surpasses even Gladstone, whose skill in tongue-fence is akin to Grace's deftness with the bat. So great a hero in British eyes is the champion cricketer that the medical profession is proud to claim him as a member; the *Lancet* pretends to believe that his medical training has something to do with his athletic prowess, and the *British Medical Journal* has started a subscription-list of its own for him. Meanwhile many a deserving member of the profession may starve. *Quantum est in rebus inane!* As Grace plays cricket all the summer, and is largely engaged in other forms of sport during the winter, one wonders when he finds time to attend to his medical practice. He had a preternaturally long career as a student at St. Bartholomew's Hospital, and it used to be a stock joke among the examiners at the College of Surgeons when he had come to grief for the *nth* time to say: "Bowled again, Mr. Grace." It would have been more in accordance with the fitness of things if he had been a vet. instead of a doctor, for he has made a living much more out of "balls" than out of "pills."

In the way of additions to the sum of knowledge in medicine there is nothing of importance to chronicle. In his researches on immunization against snake-poison, which were introduced to the world with a flourish of journalistic trumpets, Professor Fraser, of Edin-

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burgh, has trodden in the footsteps of Dr. Calmette, a well-known pupil of Pasteur's, who, after doing much to spread the light of science in the far East (he was head of a bacteriologic institute at Saigon, Cochin-China), is now director of the Pasteur Institute at Lille, France. Of progress in other directions there is for the moment no sign, but our workers are following Grant's advice and "pegging away." As regards the diphtheria-antitoxin in particular, the only thing resembling an official deliverance on the subject is a statement reported to have been made by Sir J. Russell Reynolds, President of the Royal College of Physicians of London, and also of the British Medical Association, to an enterprising reviewer, that if his wife or child had diphtheria he would use the remedy. But we are still waiting for the report of the Metropolitan Asylums Board on the results obtained in the hospitals under their management.

## SOCIETY PROCEEDINGS.

### BRITISH MEDICAL ASSOCIATION.

*Sixty-third Annual Meeting, held at London, July 30 and 31, August 1 and 2, 1895.*

(Continued from page 167.)

SECOND DAY—JULY 31ST.

SIR WILLIAM BROADBENT delivered the Address in Medicine. His subject was

THE GROWTH OF THE ART AND SCIENCE OF MEDICINE.

The words "art" and "science" were used in this order advisedly, for the art of healing is one of the primary needs of social organization, however rudimentary, and preceded by many ages the development of anything that could be called a science of medicine. So far, moreover, the art of healing has always been in advance of science, firmer in its basis and more secure in its principles, and, even when medicine as a science has realized our highest aspirations, the end and aim will be art—that is, skill in the recognition and treatment of disease. At the same time it is true that until science began to throw light on its path the art of healing struggled blindly on its way, and its advances were intermittent and slow, with long intervals in which there were stagnation and retrogression. All true progress in medicine has consisted in the application of the results of scientific investigation to the facts of observation.

At whatever period of the world's history and at whatever stage of civilization we may contemplate the physician engaged in combating disease, there will be recognizable three distinct factors in his work—his power of identifying disease, the remedies at his command, and the ideas by which he is guided in the employment of these remedies.

The first rough and imperfect identification of the more conspicuous forms of disease was scarcely worthy of the name of diagnosis. Anatomy, which is essential to the localization of morbid conditions, was scarcely known; no shadow of comprehension of physiologic or pathologic processes entered into the conception—it was simply the attaching of a name to an assemblage of symptoms, the course of which, however, was watched with great sagacity.

How remedies were first discovered and how the properties and uses of so many of them as were handed down from remote antiquity were known is matter for amazement. Animals are credited with instincts that direct them to the consumption of certain herbs or mineral substances when their health is deranged; the instincts of primitive man also must have applied to remedies as well as to food, and experience of their effects must have been accumulated and transmitted, embodied frequently in legend or superstition, as part of tribal knowledge.

Of the infancy of medicine, properly speaking, we know nothing. Individual acts of healing are related in the Old Testament, and the treatment of wounds is described by Homer; the Chinese from remote antiquity had a system of medicine, and medicine has a place in the *Vedas;* but in the works of Hippocrates, the earliest medical literature that has come down to us, we are at once introduced to the theory and practice of the art of healing at a considerably advanced stage of development. Already there were rival schools of thought and treatment, and disease was discussed with extraordinary acumen from opposite points of view both as regarded its nature and phenomena.

Bleeding was in every-day use, not by any means as a routine fashion, but with judgment; cupping also was practised. The virtues of opium were known, and purgatives of various kinds, chiefly irritating and violent, and emetics were familiar remedies; enemata and suppositories and pessaries were employed, and fomentations and poultices in great variety were applied.

Hippocrates, whose writings embody all our knowledge of ancient medicine, was born about 460 B.C. He was a contemporary of Socrates, Euripides, and Aristophanes, and was a worthy representative of medicine at that brilliant period of Greek literature and intellect called the age of Pericles.

It is true that his knowledge of anatomy was rudimentary, and that his physiologic ideas were totally wrong, but he has left of himself the picture of a sagacious observer and wise physician. He was the inheritor of the knowledge and traditions of the school of Cos, and another source of information by which he had profited was the training-establishments of athletes, where the influence of diet, gymnastics, and baths on health and vigor was carefully watched. His attitude of mind was toward the study of disease as such, rather than the differentiation of distinct diseases. Refinement in this latter direction had obviously been carried much too far by the school of Cnidos, which he criticised and opposed, where symptoms were looked upon as separate morbid entities.

His distinguishing merit, however, was that he was guided by observation and not by theory. Hippocrates could not, any more than his contemporaries or successors, or than we ourselves, escape the dominion of theory; but his theories were generalizations from observed facts, and not deductions from preconceived ideas or so-called first principles.

The doctrine with which his name is associated, that of the coction of humors and of critical days, for example, is essentially a generalization from the natural history of certain simple diseases. The facts were essentially facts of the natural history of disease. The theory evolved as an explanation of the course of events and

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applied in the elucidation of disease of which the processes were not patent on the surface, was that some one of the four humors, the due balance of which constituted health, had obtained predominance and set up disturbance, general or local; this was concocted or elaborated by the animal heat, increased for the purpose, and qualified by admixture of other humors, and so brought into a condition in which it could be expelled and got rid of.

Hippocrates, from this subordination of theory to observation, from his careful study of the causation of disease, not less than from the lofty sentiments and clear judgments contained in his writings, remains, and must ever remain, the model physician.

During the 500 years that separated Galen from Hippocrates the center of gravity of the civilized world had shifted. Greece, shattered by conflict between its different States, had succumbed to Macedonia. Alexander had conquered Asia and then died. On the ruins of his empire Rome had gradually risen, and when Galen lived had extended her rule over Greece, Asia Minor, Egypt, and the southern littoral of the Mediterranean as well as over Gaul, Spain, and Britain. There had been time, however, for the development of a high degree of intellectual activity and literary culture under the Ptolemies in Egypt, and Alexandria had become a great center of learning. Here marked advances were made in anatomy; dissection was practised on human bodies as well as on animals. Herophilus, between 305 and 280 B.C., left his name to the confluence of the sinuses of the dura mater; Erasistratus, a contemporary, recognized in a crude way the motor and sensory functions of the nerves; Chrysermes, 240 B.C., wrote on the pulse, as did also Heraclides, 230 B.C.

Medical writings date from Alexandria as late as 170 A.D., but the school had long lost its authority, and Rome henceforth attracts the highest medical talent. The physicians who first made a name in Rome are Greeks—Asclepiades, the friend of Cicero, and Galen himself. Celsus, however, who comes between the two, writes in Latin.

Galen, who was born at Pergamos, A.D. 130, dominated medical thought for 1500 years, and if it was inevitable that authority should exercise such undisputed sway for so long a period it was perhaps fortunate that it derived from Galen. He was in spirit a follower of Hippocrates, and the basis of his ideas on disease and its treatment was observation. His keen and active intellect and fertile imagination, it is true, led him to theorize on every conceivable subject; but the impression left as to his character by reading his numerous works is that of an acute observer, of remarkable ingenuity and profound judgment, and excellent common sense.

He dissected diligently and thoroughly, but mainly monkeys rather than the human subject. Taking this into consideration, his writings on anatomy were wonderfully complete and exact. They held sway until the time of Vesalius. He finds the most ingenious reasons, often far-fetched and preposterous, for the form, consistence, and relations of all the various organs.

In respect of anatomy, his knowledge was incomparably superior to that of Hippocrates. He experimented on the spinal cord and on the nerves, and knew that they subserved motion and sensation—knew even that there were motor and sensory nerves distributed to the muscles and skin respectively, discovered the part taken by the recurrent laryngeal nerve in phonation, and, although his physiology is chiefly represented by fanciful teleologic explanations of the uses of the different parts and organs, he made noteworthy additions to the knowledge of functions.

Apparently Galen was the first to establish the fact that the kidneys secreted the urine, and that it was conveyed by the ureters to the bladder. At any rate, this was disputed in his time, the objection being that the urine could not be forced back through the ureters, and could not, therefore, have entered by these canals. The bladder was supposed to attract the urine. He demonstrated it by tying the ureters; and in the course of his experiment he almost stumbles on the discovery of the circulation, for he maintains that blood is carried by the renal arteries to the kidneys in order that its watery part may be filtered off. The traditional ideas as to the origin of the veins and of the flux and reflux of the blood in them, however, blinded him to this and other evidence, and he believed that the arteries contained air, though he maintained that they also contained blood.

A frequent reproach brought against Galen is that he spoke of the interventricular septum as perforated, so as to allow the passage of air between the two ventricles, against the evidence of his senses; but an excuse can be found for him in the fact that invisible communications had always been supposed to exist between the trachea and the arteries, by which air passed from one to the other. He can only have meant similar invisible perforations, the orifices of which he would think he saw in the depressions which the walls of the ventricles present.

Galen wrote more than a hundred treatises on various subjects, including six on the pulse, and, while giving extravagant descriptions and making fanciful comparisons, he pointed out distinctions and characters that have been verified by the sphygmograph.

His treatise on local affections is remarkably true to Nature, and no more impressive lesson on the value of observation, even when unaided by science and experiment, can be afforded than by realizing how fresh and vivid and modern his descriptions of diseases and symptoms sound. His diagnosis, for example, between hematemesis and hemoptysis and other forms and causes of blood-spitting leaves little to be desired.

Materia medica was always too multifarious, even in the earliest times, and that of Celsus and Galen was much more varied than that of Hippocrates. Theriaca, so named from containing viper's flesh, was the subject of a work by Galen. It was a complicated opiate electuary containing about 63 ingredients, among which, besides poppy-juice and the vipers, were pepper, rose-leaves, iris, licorice, cinnamon, nardus, cassia, crocus, frankincense, balsam, gum, fennel, cardamom. It is said to have been employed for 2000 years. Aloes, in Galen's hands, had largely taken the place of the irritating purgatives, such as hellebore and spurge, previously employed. Dioscorides, who wrote in the first or second century, describes more than 2000 substances, chiefly vegetable. It may be remembered that an attempt was made only last year to invalidate the patent for lanolin on the strength of a process for obtaining fatty matter from wool, given by Dioscorides.

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The doctrine specially associated with the name of Galen is the humoral pathology accepted by him from Hippocrates, and developed. The humors are phlegm, blood, yellow bile, and black bile; and all diseases arise either from a change in the quality of these humors, or from a predominance of one or other of them, or a flux of some particular humor to a given part. But, like Hippocrates, Galen is first of all an observer, and his theories, faulty as they may be, are generalizations from observations, and not deductions from *a priori* assumptions as to the nature of things.

Both Hippocrates and Galen rejected the doctrine of the sect of empirics, who declared that experience alone, without reasoning as to the nature or relations of observed phenomena, and without reference to causation, or to the influence of climate, season, age, sex, character of constitution, or mode of life, was the only safe guide in the treatment of disease.

Hippocrates still more emphatically rejected the pseudo-philosophic deduction of rules of treatment from the abstract qualities, hot and cold, dry and moist, acrid and sweet; and Galen in his turn rebutted the methodic doctrine of Asclepiades and Themison, which he found prevailing in Rome, and according to which all diseases were referred to constriction and relaxation, and treatment consisted in relaxing and astringing.

A high standard of medical literature is maintained by Oribasius, the friend of Julian, from 350 to 400, by Aetius, who wrote near the end of the fifth century; Alexander, a little later in the reign of Justinian; and Paulus, who lived about 620; and improvements in practice can be traced during this period.

Alexander treated gout with purgatives, in which a kind of colchicum was a constituent. Paulus first described the aperient action of rhubarb, and extolled steel in scirrhus of the spleen.

After this there is a long gap in the history of medicine and of the liberal arts generally, but this is not to be wondered at. The Roman system of civilization was gradually broken up, and its warring fragments were shaped by geographic and racial conditions into States out of which modern Europe has grown.

The seat of Government was shifted from Rome to Constantinople in 330. Rome was sacked in 546 and 549; later the Church established its dominion over the ruins of the ancient city.

As countries and governments were organized and delivered from the pressure of constant war, universities were founded. At Salernum there were already professors of physic in the middle of the seventh century. Charlemagne founded a college here in 802, and the Schola Salernitana was dedicated to Duke Robert of Normandy, son of William the Conqueror. The Universities of Bologna and Paris almost rival in antiquity that of Salernum. Thus in these dark ages the revival of learning and the *renaissance* of art were being prepared.

Names that have remained famous began again to appear in the ninth century. The followers of Mohamed in the course of their conquests found at Alexandria the works of Hippocrates, Galen, and other early medical writers. These they translated into Arabic, and upon them was based the medical learning for which Arabian physicians became renowned. With the Moorish conquest of Spain, and the extraordinary culture and civilization developed by the invaders, the writings of Hippocrates, Galen, and the best Greek physicians, which had almost been lost sight of, came back to Europe with practical additions and modifications of great interest. Venesection was employed with greater moderation, and milder purgatives were substituted for hellebore and the like.

Rhazes, from 852 to 932 A.D., besides reproducing the most important works of Hippocrates and Galen, gave the first account of smallpox, which, like the plague and cholera, came to us from the East, where he had seen it before the Saracens brought it into Europe in the course of their invasion. His description of the disease served for 500 years, and it is perhaps worthy of remark that he compares it to a ferment in the blood, like must. He is said to have been the first to employ chemic as distinguished from Galenic remedies.

Avenzoar speaks of adherent pericardium and mediastinal abscess, and employed nutrient enemata. Albucasis appears to have been very enterprising as a surgeon. It was only at the end of the fifteenth century that, in the general revival of learning, Greek medical literature displaced the Arabian writers, and again resumed its authority.

While there is evidence that clinical medicine was seriously cultivated, such events as the visitation of the plague in 1348, which carried off one-fourth of the population of Europe, and modified profoundly social history, or the successive epidemics of the sweating-sickness, which specially affected England from 1485 to 1529, left no mark on the history of therapeutics. Syphilis, which first became prevalent and virulent in 1494, afforded better opportunities for the trial of remedies. Guaiacum obtained a reputation as a specific for this disease, which we do not now understand; but it was seen before long that mercury, which was employed in the form of inunction, was the real remedy. John of Vigo was the first to recommend mercurial inunction, but Carpus previously employed it as a secret remedy, and amassed a large fortune thereby. Fumigations were also practised. The effects were attributed to the carrying off of humor by the salivation that was produced. The introduction of mercury was an important addition to the materia medica.

Already in the fourteenth century *post-mortem* examinations and dissections of the human body were made. The imagination was stimulated and a material impulse was given to the energies and ambitions by the discovery of America in the fifteenth century, and the invention of printing in 1462 made general intellectual culture possible. An evidence of the revival of interest in medicine was that the practice of medicine, which had drifted into the hands of monks and priests, was reclaimed. Linacre in England took the licensing to practise out of the hands of the bishops, and founded the Royal College of Physicians in 1518.

The prodigious mental activity of the sixteeenth century took in medical matters the form of eager and close study of human anatomy. Vesalius challenged the accuracy of Galen, and was hauled before the Inquisition for his pains. Other names which mark this epoch and which have been left imprinted on some part of the human frame are Fabricius, Eustachius, Fallopius, Ingrassius, Colombus, Arantius, Varolius, while Servetus, Colombus, and Cæsalpinus almost penetrated the secret

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of the circulation. This great discovery, however, was reserved for Harvey, and the publication of the *De Motu Cordis* in 1628 constituted the most important epoch in the history of medical, and, indeed, of biologic science. But while vindicating his undoubted claims, we must not forget that he owed his early knowledge of the anatomy of the heart and vessels to Fabricius, and drew his inspiration from the teaching he found at Padua. There is no need for me to dwell on the importance of the discovery of the circulation. When completed by the demonstration of the capillaries by Malpighi and by the discovery of the lacteals already made by Aselli in 1622, and of the receptaculum chyli and thoracic duct by Pecquet in 1647, and of the lymphatics by Steno somewhat later, the foundation was laid for physiology and the first step taken toward a real comprehension of disease.

It was a long time, however, before the establishment of the circulation began to bear fruit. Indirectly, it is true, an end was made of various absurd discussions, as, for example, whether bleeding ought to be done on the same side as a pleurisy or on the opposite side, which was the subject of a formal enunciation by the University of Salamanca to be enforced by legal penalties, and minds were emancipated from the authority that had enslaved them for so many centuries. But the first conclusions drawn from the circulation of the blood and lymph were absurd if not mischievous; one kind of blood was supposed to be conveyed to the muscles, another to glands, and the nerves were supposed to convey nutriment to white fibrous tissues, and a century after Harvey there were physicians who sat to Le Sage for the portrait of Sangrado, which he drew in *Gil Blas*, and to Molière for the character of Diafoirus.

While Sydenham, who wrote between 1666 and 1680, and Boerhaave (1668-1738), the best and most representative physicians of their respective times, fully realized the fact of the circulation of the blood, it had exercised remarkably little influence on the theoretic views that they entertained with regard to disease, or on their practice.

Sydenham may be called the English Hippocrates. He was the last and best of the pure Hippocratic school, unless, indeed, we include Trousseau. He was, above all, a careful clinical observer. With regard to remedies the great acquisition of Sydenham's time was bark, which had been brought over from America by Jesuit missionaries about the middle of the seventeenth century. After accepting it cautiously, he employed it freely but judiciously, laying down rules which have been found useful ever since. Mercury was of course in common use, and antimony was an acquisition of which he thought highly. Epidemics he attributed to influences emanating from the earth, and he considered that different years and the various seasons impressed different characters upon the prevalent diseases, in which, in fact, he followed Hippocrates. Other diseases were due to vitiation of the blood; Nature was engaged in the expulsion of the peccant substances. It was the business of the physician to co-operate with Nature, and his art consisted in recognizing the indications presented by the symptoms and the direction in which he must act in order to aid in restoring the normal equilibrium.

Boerhaave, whose principal works date from the first years of the eighteenth century, was also a great physician, and exercised by his writings and through his enthusiastic follower and commentator, van Swieten, a powerful and lasting influence on medical thought in his day. He evidently had great experience, and was successful in practice. He had the great merit, too, of teaching at the bedside. He seems to have thought that with the discovery of the circulation and the advances in botany, chemistry, physics, mechanics, and clinical experience, medicine had in his day attained to certainty and almost perfection, but his theories were drawn largely from the assumptions and imaginations of the iatro-mechanic school.

Nothing could more confirm us in our respect for the genius of Hippocrates and the good sense of Galen than to attempt to follow the fanciful extravagances which from time to time partially displaced their humoral pathology, and have been known as the iatro-chemic and iatro-mathematic or mechanic theories. Every discovery in alchemy, as early attempts at chemistry were called, and every new development of mathematic or mechanic science, was in turn seized upon as affording the clue to the causation and treatment of disease. Even the circulation of the blood and the early knowledge of structural anatomy were turned to perverse theoretic use. Just as for the methodics in the time of Galen every disease was referred to constriction or relaxation of parts, and the remedy sought in relaxants or astringents, so at one time all diseases were ascribed to acidity or alkalinity of the humors or to fermentations; or again to obstruction of pores or minute vessels and inspissation of liquids. The contraction of muscles was due to a sudden swelling of their substance set up by the nervous juice or spirits conveyed by the nerves. Respiration was for the purpose of giving a due comminution to the blood by the movements of the lungs. Fever was explained by an acrid nervous juice, which excited the heart to more frequent and forcible action.

Later still the physiologic discoveries of Haller, the establishment of the principle of irritability as a property of living tissues, and the employment of the term "stimulus" led to another general theory of disease—the doctrine that fever and inflammation were the result of over-stimulation, which was attended by a return to extravagant and indiscriminate bleeding. From this there was the Brownonian reaction to the contra-stimulant doctrine, with equally indiscriminate, if not equally mischievous, administration of stimulants. Even the revelations of morbid anatomy and pathology were at first made the basis of a general doctrine relating to disease—the organicism of Broussais; everything was referred to gastro-intestinal inflammation, and again venesection was the universal remedy.

Harvey's great discovery remained comparatively barren until it was supplemented by Lavoisier's explanation of the process of respiration, and indeed almost until a further impulse was given to thought and experiment by a diagnosis of diseases of the heart by means of physical signs.

Then an important step was made in the elucidation of the mechanism of the circulation by the discovery of the vasomotor nerves, and the demonstration of the contraction and dilatation of the arterioles in obedience to stimulation of these nerves, by Claude Bernard.

Almost concurrently the regulatory apparatus of the heart's action through the vagus and sympathetic was

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identified by the brothers Weber. These discoveries were followed out in detail by a multitude of experimenters, and the adjustment of the supply of blood to local demands for the purposes of nutrition, secretion, muscular action, and the response of the heart to the general requirements of the system, to excitement, emotion, exercise, are now thoroughly understood.

It is only comparatively recently that the blood-pressure in the arteries and veins, and in different parts of the arterial and venous system, first measured tentatively by Stephen Hales, has been experimentally investigated by the graphic method by Ludwig and his school and made available for clinical work through the sphygmograph by Marey and his followers.

The relative share of the heart and vessels in the production of variations in the blood-pressure was thus made clear, and then for the first time the complex and multitudinous indications afforded by the pulse could be understood.

At the same time that the lacteals and lymphatics were discovered, the structure of the glands was investigated by Glisson and Wharton, and the minute anatomy of the tissues generally was initiated by Malpighi, Ruysch, and Leeuwenhoek, who demonstrated the capillaries by injection and recognized the corpuscular elements of the blood by means of the first rude form of microscope.

The invention of the microscope opened another avenue to knowledge, and every improvement in this instrument and in the preparation of structures for examination has been followed by a further penetration into the secrets of organization and a better comprehension of function. Staining, for example, has not only facilitated the identification of different structures in their minutest ramifications and most intricate combinations, but has made it possible to distinguish between active protoplasm, in whatever form it may be found, and the material formed by it, and has revealed essential differences between cells otherwise apparently alike in all respects.

Schwann and Schleiden laid the foundation of histologic science by the discovery of cells as the structural unit, and when the knowledge of minute anatomy had reached a certain point the results were systematized by Bichat, who by his general anatomy prepared the way for the cellular pathology of Virchow.

Side by side with advancing knowledge of structure has come increasing comprehension of function. Physiology from first to last is based on experiment. It was by experiment that Galen proved that the kidneys secreted and the bladder retained the urine, and learnt the motor and sensory functions of nerves, and that Bell, again, nearly seventeen-hundred years later, discovered that the posterior nerve-roots were sensory and the anterior roots motor. It was, of course, by experiment that the circulation of the blood was established. The advances made by Haller (1708–77), again, in the elucidation of vital action were based on experiment. It was not, however, till the example was set by Magendie that experiment was systematically employed in the investigation of all the functions. He was followed by Claude Bernard, to whom we owe our knowledge of the vasomotor apparatus and its influence on secretion and nutrition, and with whose name is associated the glycogenic function of the liver, which has been rudely questioned if not overthrown by Pavy; by Ludwig, who elucidated the dynamics of the circulation; by Marshall Hall and Brown-Séquard, who led the way in the experimental investigation of the functions of the various parts of the nervous system which has now reached such a wonderful stage of development.

Next to the discovery of the circulation, and almost rivalling it in importance, were the enunciation and proof of the theory of respiration. Priestley had shortly before discovered oxygen, and combustion was just beginning to be understood, when the demonstration by Lavoisier, in 1783, that carbonic acid was exhaled and oxygen absorbed by the lungs, and the comparison of the operations that resulted in this interchange of gases with the process of combustion was not merely an increase or development of previous knowledge; it was a revelation and a revolution. Until then the lungs were supposed to be simply the great and primary instrument for giving a due comminution to the blood. For the first time chemistry was brought into relation with vital operations. The original ideas, it is true, were imperfect and in some respects erroneous; but the conception of respiration as comparable with combustion was the germ of all our present knowledge of oxidation as the source of the various forms of energy developed in the system.

The full development of these ideas, however, was only possible when the doctrine of the correlation of forces and the conservation of energy was established, and it is an interesting fact that it was originally suggested by the search for an explanation of the constancy of the temperature of the body in different climates and under varying conditions.

As the microscope has revealed the intimate structure of the tissues and the mode in which they are first developed and then maintained, so chemistry has followed step by step, interpreting the connection between structure and function. The molecular changes that constitute the science of chemistry, indeed, underlie and determine the structural changes revealed by the microscope. Chemistry it is that brings us closest to the ultimate facts of life, and gives us the deepest insight into vital operations. Every vital action is a chemic action, whether the as yet to us mysterious process by which are built up the complex chemic molecules out of which the tissues are constructed or the partially understood katabolic operations by which energy is liberated.

Profound importance attaches, therefore, to the progress of organic chemistry, and those who have prosecuted its study, from Berzelius to Liebig, who led the way by analyzing the excretions and secretions and by separating and classifying the organic constituents of the various structures, down to the workers of the present day, who, by processes of inconceivable delicacy and refinement, isolate the toxins and antitoxins that play so important a part in disease, have ministered to the progress of medicine. Chemistry must ultimately form the link between physiology, pathology, and therapeutics.

Morgagni (1682–1771) may be called the founder of pathologic anatomy. He was the first to describe on a large scale, minutely and systematically, the appearances found in post-mortem examinations and to connect them with the symptoms observed during life.

John Hunter, who had perhaps a deeper insight into

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pathologic processes, may be placed side by side with him; Andral and Cruveilhier later produced magnificent treatises and atlases, and since their time an enormous accumulation of facts by pathologic societies has taken place, and innumerable works on pathology have systematized the results and marked the progress made. The intent study of the changes produced by disease could not but imply a desire to understand the processes by which they were brought about. Chief among the men who have thrown new light on morbid changes and given an impulse to the study of the science of pathology must be placed the names of Virchow and Paget. With Virchow's *Cellular Pathology*, published in 1856, a new conception of pathologic changes was introduced. They were seen to be perversions of cell-nutrition and cell-activities, and diseases of the various organs were studied not as such, but as due to morbid changes in the cell-elements of the different structures entering into their composition.

Inflammation, the most common and important of these processes, has naturally been the battle-ground of rival theories. For a long time it was regarded as a purely vascular phenomenon, and all the changes in and around an inflamed area were studied from the point of view of contraction and dilatation of the capillaries and of acceleration or retardation of the current of blood through them. Then exudation of liquor sanguinis into the interstices of the tissues and proliferation of the tissue-elements were looked upon as the essential feature of the inflammatory process, and later still came Cohnheim's discovery of the migration of leukocytes. It would almost seem that every detail of the changes that take place in the course of a local inflammation is now known. With the progress of this knowledge ideas as to the nature and character of the process have completely changed. Formerly it was looked upon as destructive only; now it is recognized as, primarily at any rate, defensive—a mustering of leukocytes to oppose the invading bacillus, or a preliminary to repair of damage by the removal of structures too deeply injured to be fit for further service.

While so much is definitely known of the behavior of vessels, and blood-corpuscles, and leukocytes, and tissue-elements during inflammation, chemistry has not yet said the last word on the changes in the blood and structures. It is in virtue of some antecedent chemic and consequent physical change in the capillaries and tissues that the leukocytes are arrested and made to traverse the capillary wall, and it is not as an act of volition, but in virtue of some chemic affinity that the phagocyte englobes and disintegrates the bacillus.

The microscope has played the same important part in pathology as in physiology. The structure of all the forms of tumor has been minutely studied, and their relations with normal tissue and with each other ascertained. Degenerations of all kinds in glands, muscles, and nerve-centers have been followed from the initial departure from normal conditions to complete disintegration, and the influences under which they have taken place have been investigated.

At all periods clinical observation has been in advance of physiology and pathology, presenting problems for solution, suggesting and stimulating inquiry, and waiting to turn to therapeutic uses every addition to knowledge.

Perhaps, the first clinical discovery that brought physiology to bear directly on practical medicine was the introduction of physical diagnosis by means of percussion and auscultation, the former by Avenbrugger (1761) and Corvisart (1818), the latter by Laennec (1819). This not only brought the diseases of the chest within the ken of the physician, but opened out a new and wide field for observation. The effects of interference with the circulation by the various forms of valvular and structural disease of the heart could now be followed; the operation of back pressure through the lungs and systemic veins was traced, and the dependence of such symptoms as dropsy upon heart-disease became manifest. A most powerful impetus was thus given to experimental research. Both physiologic and pathologic affections of the different valves were indeed natural experiments on the hydraulics of the circulation.

Jenner's great discovery of vaccination, unparalleled as to the direct benefit conferred by it upon the human race, was essentially a fact of clinical observation. When, however, its significance was grasped by the genius of Pasteur it became the starting-point of bacteriologic pathology, which gives the most far-reaching insight into the causation of disease, and constitutes the most important of all links yet made out between science and therapeutics.

The employment of the thermometer in clinical work constituted another important epoch. We should now think clinical work impossible without it, but there must be yet living many who completed their studies without ever using it, and who remember its introduction by Wunderlich. The thermometer had, indeed, been employed by Coombs, but, either because medical science was not sufficiently advanced so that the profession was not ready for it, or because it was not applied extensively enough, it had not taken hold.

It is not too much to say that the clinical thermometer has revolutionized clinical observation and practical therapeutics. Before its introduction and systematized employment there could be no adequate study of pyrexia, its significance, its causation, or its effects, whether as an incident of inflammation or as the essential feature of fever, or as the fatal factor in hyperpyrexia. Till then the problem of the constant temperature of the body was not before the physiologist, and the researches as to the production and dissipation and regulation of animal heat, fruitful in so many directions, had not even been suggested. Still less had abnormally high temperatures been dealt with as such therapeutically.

Another physiologic discovery of far-reaching importance to which clinical observation has led up has been the definite determination of the fact that the ductless glands and probably other glands supply to the blood some material that plays an important part in the nutrition of the tissues, stimulating or modifying the cell-activities.

Few histories are more interesting than that of the successive steps by which extract of the thyroid gland was ascertained to cure myxedema, beginning with the observation that cretinism was associated with goiter, and that the essential feature of this affection, myxedema, could be induced by extirpation of the thyroid. Upon this, experiment showed that the cause was not the accumulation in the blood of some substance that ought to

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have been withdrawn from it by the gland, but the absence of some material that the gland supplied.

Older than this, and even more important, was the discovery of the part played by micro-organisms in certain diseases. Here again clinical observation and reasoning had anticipated Pasteur. The communication of disease from person to person, the incubation-period which intervened between the exposure to contagion and the development of symptoms, the successive stages which these symptoms followed and the reproduction in the individual of the poison, had given rise to the zymotic theory, according to which the history and course of these diseases were comparable to fermentation following the addition of yeast to a saccharine solution.

Experimental demonstration, however, is now demanded, and the place of theory in medicine is only to suggest and to guide investigation. It was not, therefore, until Pasteur—by the successive steps of his work on the various fermentations on pébrine—the silkworm-disease—on malignant pustule and splenic fever—had demonstrated the powers of micro-organisms, and Lister, by that infinite capacity for taking pains, which, when combined with true insight, constitutes genius, had made the totally unexpected and unforeseen extension of the germ-theory to surgical affections; until Koch again, in 1882, had identified and made visible the *corpus delicti* of "phthisis" in the tubercle-bacillus—that the microbic origin of these diseases was fully admitted and the sweeping character of this new department of knowledge was recognized.

We may even claim for clinical observation that vaccination was a standing illustration of the attenuation of a virus, and that it anticipated and pointed the way to the processes by which Pasteur has attained such sensational results in hydrophobia and by which we hope and believe that other diseases, such as scarlatina and the fevers generally, will be robbed of their terrors.

The bounds of the zymotic theory, properly speaking, have however been overpassed, and indeed swept away, and diseases such as tuberculosis are found to be caused by micro-organisms that appeared to have no analogy with those originally grouped under the name; but science has pushed the analogy between disease and fermentation still further. Just as alcohol is the potent product of the torula, so it has been ascertained that the products of bacteria are the agents that give rise to the constitutional disturbance of disease, and these products have been separated and identified. Not only so, but just as alcohol, when it has reached a certain proportion, arrests further multiplication of the torula, so do the products of bacteria bring their action to an end, and advantage is taken of this in the antitoxin-treatment of diphtheria, which has recently evoked the admiration and challenged the gratitude of mankind.

We have still to ask, What is the bearing of all these advances of knowledge on therapeutics, which; after all, is the object of our lives?

Until the last few years it has not been easy to answer this question by instances of any very extensive applications of physiology to the treatment of disease, and morbid anatomy was at one time a stumbling-block in the way of therapeutic effort. The pathologist, pointing to an excavated lung or cirrhosed liver, would ask the physician what he could expect to do with drugs against such conditions. But that stage has passed away, and we are in a better position to combat disease as we more thoroughly understand its causation and initiation, and follow mentally its development, course, and tendencies.

Given the faculty of observation, the insight that penetrates the meaning of the phenomena, the analytic and synthetic powers by which a diagnosis is constructed, the ready adaptation of means to a well-defined end, and the firmness of character required to deal with the frailties of human nature, and the best physiologist will make the best pathologist and the best pathologist the best physician.

As regards the remedies at our command, they are only too numerous. Recourse to a great variety of drugs is fatal to exact knowledge of their effects and to precision in their use, but new ones are added every day for the benefit chiefly of those who do not know how to employ the old ones. There have, however, been recent acquisitions of extreme value, heavily discounted, unfortunately, in the case of some by the mischief done through their indiscriminate use: the antiseptic group, the chloral-sulphonal group, the salicylates and salicin, the phenacetins and antipyrin class, coca and cocain. What makes some of these, moreover, far more important and interesting is the fact that their physiologic action has been inferred from their chemic constitution.

A fact that brings practical therapeutics into near relation with physiology and pathology is that the active principles of all drugs are isolated, their chemic composition is ascertained, and their physiologic action investigated. Pharmacology, in effect, has become a branch of experimental physiology, and the immediate effect of remedies is known with a completeness and accuracy heretofore undreamt of. All this is working toward a more intelligent employment of drugs, and leads toward the goal of all the efforts to bring therapeutics within the circle of the sciences. This goal is that we should know not only the effects of remedies, but how these effects are produced. This is in the last resort a question of chemistry. All vital actions are attended with molecular or chemic changes; are from one point of view chemic actions, and come under the laws of the correlation of force and conservation of energy; so, therefore, are the physiologic and therapeutic action of drugs, and obviously the key to the latter is to be found in the chemistry of vital processes. Therapeutics, to become scientific, is only waiting for answers to the questions that she puts to chemistry. Why are sodium-salts so much more abundant than potassium-salts in the blood, and why are the former almost confined to the liquor sanguinis, and the latter to the corpuscles? We must assume that albuminoid proteids have an affinity for sodium, and the globulins for potassium. With the answer to this is bound up the secret of the necessity of sodium-, potassium-, and calcium-salts to anabolic and katabolic operations, in which they take no traceable part, and of the presence of iron in the blood-corpuscles.

Why, again, in the case of substances apparently so similar as potassium- and sodium-salts will the former, if injected into a vein, even in small quantity, paralyze the heart and destroy life, while we see pints of normal saline solution thrown into the circulation with none but good results? How does prussic acid—the simplest in composition and constitution of all organic substances—

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prove fatal with such fearful promptitude by its presence in infinitesimal proportion in the blood? How again does morphin suspend the activity of the nerve-centers? Chemists must admit that the poisonous effects of prussic acid and morphin can only be due to some molecular change in these substances; they know that if the deadly cyanogen is so tied up that its component atoms cannot fly apart it is innocuous, and that a very slight change in the chemic constitution of the morphin-molecule entirely alters its effect; it is an almost irresistible inference from the doctrine of conservation of energy that the change in the molecule, say of the morphin, must be equal and opposite to the molecular change in the nerve-cells which it arrests. It seems, therefore, that we have in the chemic constitution of the morphin-molecule a clue to the character of the chemic change by which nerve-action takes place and to the quantivalence of nerve-energy.

What, then, is our position to-day in respect of the three points that we have been following—the recognition of disease, the knowledge of remedies, and the ideas that govern the employment of remedies in the treatment of disease?

The basis of therapeutics is diagnosis, the grasp of the actual condition underlying the symptoms or phenomena, and the greater our command of powerful remedies and the more precise our knowledge of their effects and of the mode in which these effects are produced, the more important does accuracy in diagnosis become.

A diagnosis, to be real, implies not only the recognition of the disease that may be present and an accurate appreciation of the morbid changes that may have taken place in various organs. It embraces also a knowledge of the nature and intensity of the pathologic processes that have been and are in operation, and of the causes that set them going, and also of the results to which they tend. A further element, moreover, enters into consideration; an estimate, by the aspect of the patient, by the pulse and temperature, and by other subjective and objective indications, of the impression made on the system, and of the resistance that it is capable of to the lethal tendencies of the disease.

Year by year we see improvement in this respect; not only that hospital-physicians and teachers endeavor to carry diagnosis to a greater pitch of accuracy and a higher point of refinement than ever before, but that the entire body of medical men are trained by improved education and systematic clinical teaching to appreciate and to practise cáreful diagnosis in their daily work.

Diagnosis has reached an extraordinary degree of advancement. There are, no doubt, still new fields to conquer, but in the recognition of diseases, local and general, there is not much that seriously concerns the human race which remains to be done. The same degree of knowledge, however, does not extend to morbid processes. Our comprehension of the significance and essential character of inflammation is by no means complete and satisfactory. The part that fever plays and the place that it holds among the phenomena of disease are far from being fully understood. It cannot have been intended by Nature for the destruction of the subject, and we can see distinctly that in some cases it forms part of the defensive operations; possibly, indeed, its general tendency is defensive, by promoting the production of phagocytes, or possibly a certain elevation of the temperature may be fatal to maleficent organisms which have taken possession of the blood or tissues. We are not certain, indeed, whether in pyrexia the heat-producing oxidation in the structures receives its stimulus from, or takes place at the bidding of, the nervous centers, or, on the other hand, is due to enfeeblement of the restraint that they normally exercise over it, or whether it defies control by the thermotaxic nervous centers.

Of course, our individual guide is mainly personal experience and observation of their effects. But the human mind is so constituted that it demands reasons, and even our experience finds expression in theory. There is, however, no theory that is supposed to apply to pathologic processes, and therapeutic in general, like the humoral doctrine of Hippocrates and Galen, the various iatrochemic and mechanic theories, the animism of Stahl; the stimulant, contra-stimulant, or organicist ways of accounting for everything—no theory of universal application. Yes! Homeopathy still, like a belated ghost, haunts the dawn of scientific medicine, and men are still found who wear its doctrines as a cloak for ignorance, or flaunt them as an attraction for the more foolish and credulous of the old ladies of both sexes.

But while our minds are not dominated by any *a priori* conception of a vital principle governing all vital operations, we must not flatter ourselves that we cannot be carried away by fashions in treatment. In our own day, under the influence of Todd, alcohol was largely accepted as the universal panacea, and for nearly a generation mercury was almost banished from the materia medica on theoretic grounds. The last twenty or thirty years have afforded us increased opportunities for the study of syphilitic diseases of the nervous system and of hereditary syphilis, because of the abandonment of mercury in the treatment of the primary disease. And if we have no comprehensive theory of disease or treatment we have our small working-hypotheses. To one man gout explains everything, and the more hazy or inadequate his idea of what gout is the more satisfactory the explanation. Gout, moreover, is accepted by the public as accounting for everything. The permutations and combinations of which uric acid is capable, and its ingenuity in giving rise to the most varied forms of disease, are truly wonderful. To another man the clue to treatment is acidity, or bile, or disease of the liver.

Names have still a great influence, and the lesson that Galen constantly enforced, that we must treat not the disease but the patient, is as necessary in our day as it was in his. It does not follow that because we call a pain rheumatic, the remedy is sodium salicylate.

At one time the action of quinin was supposed to be explained by calling it an antiperiodic, and any tendency to periodicity in the recurrence of symptoms of whatever kind, or at whatever intervals, was considered to be an indication for its exhibition.

It is inevitable that our imagination should be impressed by the revelation of the wonderful part that microorganisms have been found to play in the genesis of disease, and that our thoughts should turn toward antisepsis in our treatment. So far the greatest success has been in dealing with microbes outside the system, as in antiseptic surgery and preventive medicine, and further triumphs are to be hoped for in this direction, as, for example, in the prevention of tuberculosis. We have as

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yet little evidence of the power of antiseptics to follow and destroy the microbes when they have once got possession of the system. Quinin, however, kills the malarial plasmodium, and we have now the antitoxic serum. Apparently, too, one virus may be antagonistic to another, and an attack of smallpox has often seemed to cure pulmonary tuberculosis. We must continue our efforts to apply antiseptic principles, but it is most important that we should not allow ourselves either to imagine that we have obtained effects that have not been realized, or to attribute results to antisepsis that may have come from other causes. It is not yet clear that any considerable impression has been made on the mortality from pulmonary tuberculosis by guaiacol or creosote; and was not sulphuretted hydrogen, injected into the rectum, to deliver us from this scourge?

It was inevitable, again, that we should be greatly struck by the remarkable power of lowering the temperature possessed by the antipyretic class of drugs. We seem to have within our reach the means of dealing with our most formidable enemy, and it is a great triumph to be able to point out to friends the effect of our remedy on the temperature-chart, especially when it has been accompanied by relief of headache and other symptoms. Here it is very important that we should maintain an attitude of cool observation, and not conclude that in bringing down the temperature we have necessarily exerted a favorable influence on the course of the disease. We may have been bringing down also the patient, and it is not so certain that Nature does not know her business when she sets up febrile reaction.

THIRD DAY—AUGUST 1ST.

MR. JONATHAN HUTCHINSON delivered the

ADDRESS IN SURGERY.

After sympathetic reference to the death of Mr. Arthur Durham, who had been appointed to deliver the Address in Surgery at this meeting of the Association, consideration was given to the work of Mr. Samuel Sharp, a former surgeon of Guy's Hospital, and then to that of M. Roux, a distinguished surgeon of La Charité. Allusion was made to the plan devised by Mr., now Sir, Spencer Wells, at that time editor of the *Medical Times and Gazette*, for the publication, in a classified form, of all operations performed in English hospitals, and the carrying out of which was entrusted to Mr. Hutchinson. At this time lithotomy and ovariectomy were new operations, and the results at first were most discouraging. Later came litholapaxy, and soon the success of ovariectomy was assured, although the operation passed through a number of stages, more particularly as regards the disposal of the pedicle. Then came the development of specialism, the good results of which gradually became evident, as it was seen that a man who thoroughly understands his subject in its details can treat it with an efficiency and ease wholly unattainable by others. A comparison of operation-statistics of the present with those of the past would show among other things an enormous increase in number. From one operation-day a week in most hospitals the number increased to two, and now there are few hospitals in which every day is not so regarded. Operations in private practice have probably increased in still greater ratio. The special operations are on the whole those that conduce most definitely to mitigate suffering and to prolong life. And perhaps the most conspicuous of these is that of extirpation of the tongue for carcinoma, the diagnosis being made early and operation not being delayed. Surgical work has also enormously increased in the treatment of diseases of the female breast, partly in connection with improved methods and partly from sounder principles of diagnosis. Concerning the extension of the medical course from four to five years, it was said that the additional year must make medical education more expensive and may possibly hinder from engaging in the study precisely some of the class that it is desirable to attract.

(To be concluded.)

## NEWS ITEMS.

***The American Association of Obstetricians and Gynecologists*** will hold its eighth annual meeting at the Auditorium Hotel, Chicago, September 24, 25, and 26, 1895. The program will include: President's Annual Address, J. Henry Carstens. Relation of Pelvic Suppuration to Structural Changes that may Occur in the Fallopian Tubes, A. P. Clarke. Nephorrhaphies, George Ben Johnston. Detached Fibroids, George H. Rohé. A Clinical Contribution to Lateral Displacement of the Uterus, Edward J. Ill. Appendicitis, A. Vander Veer. Intermediate Treatment of Puerperal Sepsis, A. B. Miller. Kraurosis Vulvæ, A Contribution to its Pathology and Therapeutics, H. W. Longyear. Report of Three Recent Cases in Gall-bladder Surgery, Edwin Ricketts. Subject to be announced, H. E. Hayd. Intestinal Obstruction Following Peritoneal Operations, A. H. Cordier. Subject to be announced, S. Y. Howell. Cure of Tubal Distention without Laparatomy, F. A. Glasgow. Subject to be announced, W. B. Dorsett. Subject to be announced, C. C. Frederick. Hysterectomy in Bilateral Diseases of the Appendages, giving Remote Results, Florian Krug. *Discussion:* Vaginal Hysterectomy *versus* Abdominal Section for Pus-tubes. (*a*) Title unannounced (affirmative), X. O. Werder. (*b*) When Shall Hysterectomy Accompany Bilateral Removal of the Appendages? Reuben Peterson. (*c*) Pathologic and Surgical Contraindications of the Vaginal Route in Dealing with Puriform Diseases of Tubes and Ovaries, Joseph Price. (*d*) Title unannounced (affirmative), George H. Rohé. *Discussion:* Eclampsia Gravidarum. (*a*) Etiology, Frederick Blume. (*b*) Pathology, George F. Hulbert. (*c*) Title to be announced, W. H. Taylor. (*d*) Prophylaxis, H. W. Longyear. (*e*) Puerperal Convulsions *vs.* Insanity, W. P. Manton. (*f*) Treatment, J. M. Duff, A. H. Wright, Thomas Lothrop. Exhibition of Various Types of Rectal Papillæ, R. T. Morris. Subject to be announced, E. Arnold Praeger. Ruptured Interstitial Pregnancy. L. H. Dunning. Has Gynecology Received Just Recognition as a Specialty? M. B. Ward. Indications for Operation in Puerperal Sepsis, L. S. McMurtry. Pneumo-peritoneum, James F. W. Ross. Subject to be announced, J. B. Murphy. Subject to be announced, Charles A. L. Reed. Subject to be announced, M. Rosenwasser.

***The Canadian Medical Association*** will hold its twenty-eighth annual meeting in Convocation Hall, Queen's

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University, Kingston, August 28, 29, and 30, 1895. The following program has been arranged:

The President's Address, Wm. Bayard. The Address in Surgery, I. H. Cameron. The Address in Medicine, Edward Farrell. A Skin Clinic, in which J. E. Graham, of Toronto; F. J. Shepherd, of Montreal; and L. Duncan Bulkley, of New York, will take part. There will probably be a Clinic on several nervous cases. Physical Training and Development as a Therapeutic Measure, B. E. McKenzie. What is the Best Treatment for Retroversion of the Uterus? A. Lapthorn Smith. A Tumor of the Medulla Oblongata, J. E. Graham. Report on a Case of Akromegaly, F. Buller. Notes upon Typhoid Fever in Private Practice, W. S. Muir. Objective Noises in the Head, G. Sterling Ryerson. Some Practical Notes on Mental Depression, J. V. Anglin. The Operative Treatment of Injuries of the Head, A. J. McCosh. Discussion, James Bell, of Montreal, and Geo. A. Peters. Final Results of Gastro-Enterostomy, Robt. C. Kirkpatrick. Dysmenorrhea, report of a case, J. Campbell. The Importance of Early Treatment in Cutaneous Cancer, A. R. Robinson. The Anomalies of Albuminuria, John R. Hamilton. Double Orchidectomy in Enlarged Prostate, E. E. King. Experimental Cachexia Strumipriva, Wesley Mills. Notes on Some of the Newer Remedies Used in Diseases of the Skin, L. Duncan Bulkley. Acute Uremia, followed by Gangrenous Abscess of the Lung, A. McPhedran. Report of a Case of Spina Bifida, with Treatment, John L. Bray. Thyroid-feeding in Cases of Stupor, C. K. Clark. Syphilitic Manifestations in the Eye, Alfred J. Horsey. The Ophthalmometer, R. A. Reeve. Notes on a Case of Brain-tumor, with an Account of its Removal, J. Webster. A Case of Placenta with Hydatids, Fetus with Spina Bifida, Alex. Bethune. The Relation of Insanity to General Diseases, E. H. Stafford. Paper, T. J. Roddick. Paper, J. L. Currie. Notes on a Case of Hernia of the Vermiform Appendix, R. W. Garrett. Paper, W. W. White. Some Unusual Forms of Hernia, F. J. Shepherd. Cases in Practice, W. G. Angin. Operative Treatment in Movable Kidney, James Bell. Asthma, H. J. Saunders.

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***The Medical Society of Virginia*** will hold its twenty-sixth annual session at Wytheville, Va., September 3, 1895. The program includes the following: Address to the Public and Profession, Dr. Lewis G. Pedigo. Annual Address of the President, Dr. Ro. J. Preston.

*Subject for General Discussion.*—The General Practitioner: His Duty to the Profession, to Himself, and to Society, Dr. H. M. Patterson and Dr. B. C. Keister. The Old Virginia Doctor, Dr. John Herbert Claiborne. Vesical Calculus in Females, Dr. Z. V. Sherrill. Laparotomy, with Report of Cases, Dr. James N. Greer. Strychnin as a Heart-tonic, Dr. C. K. Kernan. Convulsions, Dr. W. S. Sayers. Treatment of Cholelithiasis, Dr. George Ben Johnston. Pelvic Inflammations, Dr. J. W. Long. Uric Acid as a Gynecological Factor, Dr. T. W. Simmons. State Provision for Epileptics, Dr. William F. Drewry. Obstruction of Bowels, Dr. Hugh M. Taylor. Puerperal Sepsis, Dr. Paulus A. Irving. Seventeen Operative Cases of Chronic or Relapsing Appendicitis, with One Death—Remarks, Dr. Hunter McGuire. Varicocele, Dr. B. C. Keister. The Galvanic Current in the Treatment of Pelvic Pain, Dr. J. Allison Hodges. Title to be announced, Dr. Joseph Price. Abscess of the Liver in Children, Dr. R. M. Slaughter. A Long Survival of Injury of the Spinal Cord in the Cervical Region, Dr. James L. Kent. Pathology and Treatment of Gonorrhea, Dr. Charles M. Blackford. The Symptomatology, Etiology, and Treatment of Endometritis, Dr. George Tucker Harrison. A Case of Cerebral Trauma, Indistinct and False History—Remarks on Diagnosis and Treatment, Dr. M. J. Payne. Eye-troubles in their Relation to Diseases of Other Organs, Dr. Joseph A. White. Pyemia and Septicemia in their Surgical Aspects, Dr. J. McFadden Gaston. Rigid Os, Dr. D. Mayer. Some Recent Work in Gall-bladder Surgery, Dr. Edwin Ricketts.

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***Meetings of State, National, and International Medical Societies.***

| | Meets. | Next meeting. |
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| American Association of Obstetricians and Gynecologists. | Sept. 20, 1895 | Chicago, Ill. |
| American Dermatological Association. | Sept. 17, 1895 | Montreal, Can. |
| American Electro-Therapeutic Association. | Sept. 3, 1895 | Toronto, Can. |
| American Gynecological Society. | May 27, 1896 | New York City |
| American Medical Association. | May 5-8, 1896 | Atlanta, Ga. |
| American Orthopedic Association. | Sept. 19-21, 1895 | Chicago, Ill. |
| American Public Health Association. | Oct. 1-4 | Denver, Col. |
| Association of American Anatomists. | Dec. 18, 1895 | Philadelphia. |
| Florida State Medical Society. | April 1, 1896 | Sanford. |
| Idaho State Medical Society. | Sept. 9-11, 1895 | Boise City, Id. |
| Illinois State Medical Society. | May 19, 1896 | Ottawa, Ill. |
| International Congress of Gynecology & Obstetrics. | September, 1896 | Geneva, Switzerland. |
| International Congress of Hydrobalneotherapy. | 1895 | Ostend. |
| International Congress of Otology. | Sept. 23-26, 1895 | Florence, Italy. |
| International Medical Congress. | August, 1896 | Moscow, Russia. |
| Maine Medical Association. | June 4, 1896 | Portland, Me. |
| Medical Association of Georgia. | April 15, 1896 | Augusta, Ga. |
| Medical Association of the State of Alabama. | April, 1896 | Montgomery, Ala. |
| Medical Society of the State of New York. | Jan. 28, 1896 | Albany, N. Y. |
| Medical Society of the State of Pennsylvania. | May, 1896 | Harrisburg. |
| Medical Society of the State of Tennessee. | April 9, 1896 | Chattanooga. |
| Medical Society of Virginia. | September 3 | Wytheville, Va. |
| Mississippi Valley Medical Association. | September 3-6 | Detroit, Mich. |
| New York State Medical Association. | October 15-17 | New York City |
| Ohio State Medical Society. | May 27-29, 1896 | Columbus, O. |
| Oklahoma Medical Society. | Nov. 14, 1895 | Oklahoma City |
| Texas State Medical Society. | April, 1896 | Ft. Worth, Texas. |
| Tri-State Medical Society of Illinois, Iowa, and Missouri. | Oct. 1-4, 1895 | Des Moines, Iowa. |
| Utah State Medical Society. | Oct. 1, 2, 1895 | Salt Lake City. |
| Vermont State Medical Society. | October 10, 11 | Burlington, Vt. |

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***The William F. Jenks Memorial Prize*** of five-hundred dollars, under the deed of trust of Mrs. William F. Jenks, has been awarded to A. Brothers, M.D., of New York, for the best essay on "Infant-mortality During Labor, and Its Prevention."

The Prize Committee also reports as highly meritorious the essay on the same subject bearing the motto "Vade Mecum."

The writers of the unsuccessful essays can have them returned to any address they may name by sending it and the motto that distinguished the essay to the Chairman of the Prize Committee, Horace Y. Evans, M.D., College of Physicians, Philadelphia.

***Dr. James R. Tryon,*** Surgeon-General of the United States Navy and Chief of the Naval Bureau of Medicine and Surgery, has been awarded the bronze medal of the Red Cross Society of Venezuela, in recognition of services rendered the wounded at La Guayra during the Venezuelan revolution, three years ago, when Dr. Tryon was surgeon of the United States flagship "Chicago."

***The Buffalo Medical Journal*** has celebrated its fiftieth anniversary by the issue of a special edition of 128 pages, profusely illustrated, and containing some 18 original articles, together with a historic review covering the period of the *Journal's* existence, and the usual editorial and other matter.

***The British Gynecological Journal.***—The issue of an American edition of this valuable publication, which is the official journal of the British Gynecological Society, has been begun. Dr. Luth Napier is the editor, and Hirschfeld Brothers, of New York, the American publishers.

***Prof. Moos,*** the distinguished otologist, died recently at Heidelberg. With Prof. Knapp, of New York, he founded, in 1869, the *Archiv für Ohrenheilkunde* and the *Archives of Otology*, appearing simultaneously in Germany and the United States.

***Testimonial to Sir Joseph Lister.***—On his retirement from King's College, London, Sir Joseph Lister was, July 31st, presented with a three-quarters length portrait of himself, together with an illuminated and illustrated album containing the names of the subscribers.

***Dr. Thomas McKennan,*** an eminent and successful physisian of Western Pennsylvania, died at Washington, Pa., August 9th, at the age of seventy-one years.

***The Tri-state Medical Society of Alabama, Georgia, and Tennessee*** will hold its next annual meeting in Chattanooga, October 8th, 9th, and 10th.

***The Los Angeles Polyclinic*** is the title of a new monthly publication under the editorial charge of Dr. J. F. T. Jenkins.

***For the James E. Reeves Fund.***—We have received from Dr. H. A. McCallum, $1.00; Dr. J. P. West, $1.00; Dr. J. Robinson, $1.00.

BOOKS AND PAMPHLETS RECEIVED.

Chloroform in Labor. By Edwin Ricketts, M.D. Reprinted from the Virginial Medical Monthly, 1895.

Action of Certain Acidic Oxids on Salts of Hydroxy-acids. Part I. Metallic Tartrarsenites. By G. G. Henderson, D.Sc., M.A., and A. R. Ewing, Ph.D. Reprinted from the Transactions of the Chemical Society, 1895.

Vaginal Hysterectomy as Done in France. By Edgar Garceau, M.D. Reprinted from the American Journal of Obstetrics, 1895.

Genito-urinary Surgical Clinic. Tumors within the Scrotum; A Case; Hematocele, Hydrocele, Abscess, with Old Hernial Sac; Operation. By W. B. Rogers, M.D. Reprinted from the Memphis Medical Monthly, 1895.

Laryngo-tracheotomy for Foreign Body. By W. B. Rogers, M.D. Reprinted from the Memphis Medical Monthly, 1895.

A Constriction of the Ileum by Omphalo-mesenteric Remains. By Helen C. Putnam, A.B., M.D. Reprinted from the Medical Record, 1895.

Annual Report of the Presbyterian Hospital in Philadelphia, 1895.

The Treatment of Wounds, Ulcers, and Abscesses. By W. Watson Cheyne, M.B. Ed., F.R.S., F.R.C.S. Philadelphia: Lea Brothers & Co., 1895.

On a Modification of the "Invagination" Method of Operating for the Radical Cure of Hernia. By John H. Packard, M.D. Pamphlet. Read before the Philadelphia Academy of Surgery, February 4, 1895.

Sensible Temperatures. By Mark W. Harrington, Chief of the U. S. Weather Bureau. Read before the American Climatological Association, Washington, D. C., May, 1894.

The Best Order of Topics in a Two-years' Course of Anatomy in a Medical School. By Frederick Henry Gerrish, A.M., M.D. Reprinted from Science, 1895.

Annual Statement of the Commissioner of Education to the Secretary of the Interior, 1894. W. T. Harris, Commissioner. Washington: Government Printing Office, 1894.

The Surgical Treatment of Inguinal Hernia. By Henry O. Marcy, A.M., M.D., LL.D. Reprinted from the Transactions of the New York State Medical Association, Vol. II, 1894.

The Surgical Treatment of Spina Bifida. By Henry O. Marcy, M.D. Reprinted from the Annals of Surgery, 1895.

A New Method of Resuscitating the Stillborn. By A. B. Cooke, M.D. Reprinted from the American Medico-Surgical Bulletin, 1895.

The Operative Treatment of Varicocele. By A. B. Cooke, A.M., M.D. Reprinted from the American Practitioner and News, 1895.

Typhoid Ulcer; Perforation(?); Operation; Death. Cerebral Cyst; Operation; Recovery. By B. Merrill Rickets, M.D. Reprinted from the Cincinnati Lancet-Clinic, 1895.

State of New York. Sixteenth Annual Report of the Trustees of the Binghamton State Hospital, at Binghamton, N. Y., for the year ending September 30, 1894. Transmitted to the Legislature, January, 1895. Albany: James B. Lyon, State Printer, 1895.

On Ocular Affections of Syphilis of the Brain, with Report of Five Cases. By Charles Zimmerman, M.D. Reprinted from the Archives of Ophthalmology, 1895.

Amputation of the Female Breast. By W. W. Keen, M.D., LL.D. Reprinted from the Cleveland Medical Gazette, 1894.

Amputation of the Entire Upper Extremity (Including the Clavicle and Scapula) for Sarcoma following Fracture of the Clavicle. Extensive Thoracoplasty by Schede's Method. By W. W. Keen, M.D. Read before the Philadelphia Academy of Surgery, 1895.

Ueber ein neues Heilverfahren bei Netzhautablösung. Von R. Deutschmann, Sonder-Abdruck aus Beiträge zur Augenheilkunde. Heft xx, 1895.

Report of a Surgical Clinic. Illustrated. By Prof. Augustus C. Bernays. Pamphlet. St. Louis: C. B. Woodward & Co., 1895.

Seventh Annual Report of the Department of Health of the City of Omaha, for the year ending December 31, 1894. Omaha: Klopp & Bartlett Co., Printers, 1894.

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# THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXVII. SATURDAY, AUGUST 24, 1895. No. 8.

## ORIGINAL ARTICLES.

### CLINICAL LESSONS.

#### *Hysterical Contractures.*

BY S. WEIR MITCHELL, M.D.,
OF PHILADELPHIA;
PHYSICIAN TO THE ORTHOPEDIC HOSPITAL AND INFIRMARY FOR NERVOUS DISEASES.

THESE clinical lessons are, in a measure, the offspring of opportunity. The wards have, of late, given us cases of contracture that have been so interesting and so suggestive as to tempt me to call attention to their diagnosis and especially to their treatment. The subject is in no sense exhausted.

We do not know what hysteria is. So far death has destroyed in all cases what evidence life might have offered as to its existence as an obvious thing capable of visual demonstration; and still we are apt, sometimes with too much confidence, to refer back its manifestations to this or that center. Thus, it has been taken for granted that hysterical contracture is due to disorder somewhere present in such columns of the cord as are usually diseased in cases of spastic paralysis. The chief basis on which this opinion rests is this: Cases of long-continuing hysterical contracture have been seen to end in sclerotic alterations of the lateral columns of the spinal cord. The inference is that the precedent functional states were also due to the less visible hysterical conditions of these columns.[1] Moreover, it has been taken for granted that the state of contracture is analogous to the condition we find present in muscles rendered over-responsive by lateral sclerosis.

I am not at all secure that these inferences are safe, or even that contracture is of a certainty due to spinal centers at all. It is quite possibly purely local and muscular as to origin; and, indeed, there are reasons why it is extremely difficult to consider it as of spinal birth, or in any way analogous to the state of excitability seen in disease of the lateral columns.

The history of contracture is briefly this: Under an influence, such as emotion, or from causes unknown, but usually in a frankly hysterical case, a group or groups of muscles contract abruptly or by degrees. These spasms may involve flexors or extensors, or both at once. They may affect one muscle or almost every group in all four extremities, and also the truncal muscles. This condition may last for days or years. The muscles concerned are not over-responsive to blows or to electricity. The skin-reflexes are normal or nearly so; the knee-jerk and ankle-jerk may not be in excess. Clonus is absent; if present, indecisive or brief, as we see it in hysteria or in over-excitable, weak people. The prolonged muscular action seems not to raise the local temperature. If you deeply anesthetize the patient or put on an Esmarch bandage, the muscles relax. In sleep some early cases relax; others do not. Very gentle effort in sleep to alter the angle of the limb may succeed, but the least abruptness of pull calls out a spastic response. Otherwise the spasm is constant, and efforts to overcome it forcibly give great pain. Very often there is loss of power in such muscles as are, and even in such as are not, in spasm. Usually there is profound anesthesia, confined to the disordered limbs or involving half the body.

I have said that the spasm is chronic, and this is the rule; but I have seen cases in which it came and went, or was only seen on alternate days. Quite often the flexors or extensors alone are contractured, but in the sad examples of general chronic spasm both sets of muscles are apt to suffer.

A contracture may last for years, and go as abruptly as it came—or, it is so said. I have never seen this happen, but I cannot doubt the positive statements made by others.

Under early reasonable treatment these spasms, if locally limited to single groups of muscles, are apt to get well. My own efforts to cure them with discs of metal, magnets, or by hypnotic suggestion have left me with mere histories of defeat. And yet under other treatments I often see these cases get well early. But this is not true of the more extensive contractures; in fact, the more extensive the region affected the more difficult the early treatment.

Now let us look at the graver form of multiple contracture. A patient far gone in the sad drama of hysteria has slowly, or abruptly, or after the part has been paralyzed and become insensible, a contracture of one limb, which gets worse. In a week or two the other limb suffers. Still later the remaining extremities become drawn up, and even the face, neck, belly, and thorax are involved. There are paralysis, surface-anesthesia, and intense spasm. Pain is

[1] Soc. méd. des Hôpitaux, vol. ii, 2d series, p. 24, Charcot.

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rare, unless called out by pressure or motion. Usually all the muscles suffer, but the attitude is commonly one of extreme flexion, either because of the greater power of the flexors or that they are the more excited. In some cases the limbs are in extreme spastic extension, or this is the case as to the legs, and not as to hands and arms. Very early in these cases the muscle-muscle reflexes are mechanically abolished or are pathologically interfered with; and later all reflexes may disappear in the disordered parts and direct response to a blow be lost. There is apt to be diminished quantitative muscular response to faradic currents, and years after even galvanic responses may be much lessened. The anesthesia is of the surface and is apt to be at last profound.

Sleep does not relax these cases after they have existed for some months. Great but uniform wasting is seen. The muscles harden. About the joints and between the tendons a similar leathern-like hardening is found. Ether or chloroform no longer causes relaxation; nor does an Esmarch bandage, or even section of the tendons, give rise to relaxation as in the local contracture.

This is a different symptom-group. If we ask ourselves, What has happened? What is the cause? we are at once face to face with a grave and interesting problem. Without a history we would be apt enough to consider such a case as one of anterior poliomyelitis. It is but a sketch of that malady; it is not a true picture. But suppose this patient bed-ridden for a score of years. I have seen such cases, in which the cold, absolutely anesthetic limbs have lost all reflexes, and in which the shrunken muscles refuse to move under any form of electric current, save here and there to powerful galvanic alternations. The picture of an anterior spinal malady *seems* to be fairly complete.

This sad condition belongs only to the multiple contractures. It is never found in the single-limb spasm, no matter how lasting that may be. I have seen contracture of the extensors of one leg endure six years and show no sign of the peculiar permanent hardening that marks the second stage of some more generalized contractures. I recall one case in which for nine years the left gastrocnemial group remained in violent contracture. Then a section put an end to the spasm. To my surprise the muscle thus released from tension was soft and had not shrunk. In both of these cases, when under ether, the relaxed muscle behaved to electricity like a normal muscle.

All of this is unlike what happens in the contractures affecting two or more extremities. Here, even in the very early months, the muscles may begin to show a brawn-like hardness, which is a constant condition and not to be altered by anesthetics. The muscle, at first spasmodically shortened, becomes organically set and stiffened. There is still and always more or less spasm, or at least this may be the case for years. It is also possible that joint-lesions due to long disuse and to subluxations may have finally their share in adding to the complex symptom-group the element of reflex muscular contractions.

You may have already inferred that I have become quite assured that there are two forms of hysterical contracture: one apt to be local and limited and not followed by organic muscular changes; the other apt to affect two or more limbs, and almost every muscle, even of the trunk, and prone to result in the muscular and areolar tissue-changes already described. I think it curious that while the early stage of general contracture is most difficult of cure, when the disease has caused organic changes and is in its second stage it is far less hard to deal with. Perhaps this may be due in part to the disappearance of active hysteria. Indeed it is often true that in certain old examples of contracture the symptom, contracture, exists no longer, and we have to deal alone with the mischief of organically shortened muscles, altered joints, and sclerematous changes in the intermuscular spaces. The hysteria is lost with years; the spasm lessens or ceases; the consequences and additions remain.

I have said enough to enable you to separate this peculiar state from disease of the lateral or from that of the anterior gray columns of the cord. If, however, any other test be needed, it is to be found in the ease and speed with which under rubbing and faradic electricity these wasted muscles recover their characteristic excitability. With this return such reflex actions as had been mechanically obliterated again become visible, but the skin-reflexes remain absent until the anesthesia passes away.

Richet divides contractures into painful and painless. I never saw a case of constantly painful contracture in America. Some of these cases, however, become painful for a reason not always present and which only of late has become clear to me. In general the painless contracture may be made painful by quite moderate efforts to overcome the contraction, and in old cases, such as I shall describe, the pain on movement is in the joints and not in the muscles. In advanced cases of extreme contracture of the legs you meet now and then with examples of agonizing pain, apt to be referred to the feet and never seen in the arm. I had long considered this symptom as of spinal parentage. Some years ago, however, I was led in a seemingly hopeless case to suspect that the very great suffering present might be due to the stretching of the sciatic nerves at the notch and to a possible localized neuritis. A number of tendons were cut and partial extension effected. Immediate relief followed and the pain continuously lessened as extension by instruments became more complete. Encouraged by

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this unlooked-for success, the case was attacked with larger hope, and in the end I had the pleasure of seeing a young and intelligent woman restored to a life of healthy usefulness. I happen to-day to have seen this woman; a strong, well-nourished, and apparently vigorous person. Looking back to the gnarled, blind, speechless patient of years ago, it seems a quite incredible rescue. Nothing except the rapid cure in this case shook my belief that very material organic change in the cord had taken place.

So far as my own knowledge goes, post-hysterical sclerosis of the cord occurs only in generalized contracture, after ten or twenty years of life in bed. In one such case I saw, after death, a moderate amount of sclerosis of the anterior columns and gray matter.

With such a symptom-group before us as I have already described as existing in old cases of multiple contracture, it is almost impossible to disbelieve the presence of more or less organic fascial change in the cord. So difficult is it, indeed, that I have often asked myself, if it may not be that organic lesions in hysterical people have a less serious hold on the tissues than such as come in the ordinary way, without precedent hysteria. Either we must accept some such conclusion or else believe that the group of symptoms delineated may occur without having for their parents organic material lesions of central nerve-cell and fiber. I trust I make clear how difficult is this problem.

It is especially interesting to me just now, because I have in my care a young woman whose case is very like that I just now mentioned as fortunate. As our first illustration of contracture and of many of the most remarkable incidents of hysteria, I shall have read to you at length this strange story of disease. It is rare that a record has been kept with the care given to this.

E. M. H., of Arkansas, was a girl fifteen years of age, whose parents were in good health, and who had three brothers and sisters alive and well. The mother had had two miscarriages; one child was born prematurely, and one died of hydrocephalus at six months. A maternal aunt was insane.

The patient was born at term, without difficulty and without instruments, and proved to be a healthy and well-formed baby. She was breast-fed for six months; never had convulsions, and, although she had scarlet fever, her childhood was fairly healthy.

She learned to walk and talk early and well; was, in fact, a bright, intellectual child. Menstruation began at twelve years, and ceased a year before the girl came under observation.

In 1890 the patient had epidemic influenza, without remarkable consequences. The present trouble began in that year. Late in March of 1890 she was running along a wet boardwalk, when she slipped at the end and fell, striking the back of her neck on the edge of the last board. She had to be assisted to rise, and complained of headache for several days. About a week later she tripped in the grass and fell, causing a green-stick fracture of the left radius. As soon as the nature of the accident was understood a plaster-cast was put on the arm, and soon afterward it was observed that the hand had begun to "draw up," and that to extend it was extremely painful. This gave rise to no suspicion, but when the cast was taken off it was found that the arm and hand were entirely paralyzed, had no sensation, a very poor circulation, had shrunk perceptibly, and were blue and mottled.

The spine was examined, and said to have been sensitive in the upper cervical region. The girl declared that tapping it at this time made the knees tremble and ache. She was ordered to bed, applications of ice made to the spine, and bromids and other medication employed. In a few days she became extremely nervous, flighty, and imaginative; had to have the room dark and still; obliged everybody to go about in slippers, and objected to the slightest noise.

Her physician concluded the trouble to be hysterical, ordered the windows opened, and suggested that her parents insist upon an effort to move the hand. The child set her own will to work as soon as she was assured that it was possible, and in a few days was using the limb tolerably well, and was on her feet again, though weak. The hand still remained partially flexed, and rather uncertain in its movements for some time afterward.

Late in June she was taken to a farm in the country, where she steadily regained her strength and flesh, playing with other children, until the middle of July, when there were four excessively hot days. Although she was kept as quiet as could be, on the fourth day the left arm dropped helpless and began to contract, and later to shrink, and became remarkably blue and mottled. Early next morning she staggered into her mother's room, complaining of dizziness. Her mother caught her in her arms, and from that time she has never stood erect upon her feet without aid. She was put in bed, and had a fever in a few days, with a temperature of from 101° to 102°. She was extremely excitable, and had a variable tendency to fancy shapes and sounds about her. Within a few days the temperature became normal. By and by she sat up and played, using both hands and arms freely, and could put out either foot to draw to her the playthings she had dropped from her hands. Still she could not stand. Twice she forgot, and springing up to answer a call dropped instantly on the floor. After waiting for two weeks, thinking she would recover the use of her legs, her parents took her home to her doctor. There was at this time an almost daily perceptible loss of power in the legs, and sensation also began to go, which had not happened before.

By October 1st, twenty-four days after the last fall, the child was without sensation below the knees. Her temperature averaged from time to time from 101° to 102°, with a very rapid pulse, and a slight return of the excitable, flighty condition. The former treatment was repeated, and again

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motion was restored in ten days. The hand at this time measured three-quarters of an inch less in circumference at the first joint than the other, and the skin peeled deeply from the ends of the fingers and thumbs, so as in a measure to suggest the kind of change that is seen after an attack of scarlet fever.

From this time on there was a steady gain until September 6th, when one day she lost her balance and fell backward off her seat, striking the back of her neck, a little to the right, at the base of the brain, on the sharp edge of a sill—not a door-sill, but a part of the frame of the barn where she had been taken for her amusement. The blow raised a large lump, and was really severe. She fell doubled up between the step and the wall, and the other children pulled her out rather violently, and she complained that they hurt her back in so doing. This was late in the forenoon. She ate no dinner that day, looked pale and haggard, but said nothing about the matter. Very soon afteward it was observed that there was no motion in either feet or legs, and that the latter had begun to draw up; but the arms and hands were still untouched by this disastrous trouble.

By October 15th the knees were at a slightly acute angle, and still drawing up. Any attempt at extension caused great pain. The girl was still able to sit up, but complained that her back was constantly tired. Finally a rung was sawed out of her low chair in order to let the feet draw back under it. On October 19th, while sitting busily crocheting, her right hand fell suddenly in her lap, and a minute later the left, and neither moved again for twenty-seven months. In less than a week both arms had drawn up to a right-angle, the fingers and wrist were bent in flexion upon the arms, and both arms and legs were totally devoid of sensation. After this the child could not sit up any more, pain in the spine being constant at the lower part, chiefly in the dorso-lumbar region. The sphincter muscles of the bladder and rectum were at this time sometimes in a relaxed condition and allowed everything to pass, and at other times violently contracted so as to make the discharge of urine or feces for the time impossible.

For days the little patient was an entirely helpless person, except for the ability to move her head from side to side. About November 11th chloroform was fully administered, but the tendons did not relax, and it required the efforts of two physicians to extend the arms and legs, so as partially to straighten the joints. Next day there was a decided change for the worse. Spasmodic contractions of the neck and pectoral muscles set in. The girl could not swallow even liquids. Food was then given by injections for some days. It required an hour for her to relieve her bladder, and at this time the urine was heavily charged with phosphatic deposits, so that in a pint they were one or two inches deep.

All sorts of things happened in the next few weeks. The tongue was drawn to one side on occasions, so that the teeth rubbed the skin off it. The child became blind and nearly entirely deaf. The pectoral muscles occasionally contracted powerfully, so as to draw the arms across the chest, or to draw the chest into a deep concave, and make breathing impossible. On other occasions the head was jerked violently from side to side, even in sleep, and the girl would rise from the pillow and go to and fro with a pendulum-like motion, and then fall back, still asleep, or apparently exhausted.

There were constant spasms of the diaphragm, during which it seemed that the child would never breathe again. Her temperature during this time varied from 95° to 101°, sometimes making this extreme excursus within two hours, the pulse being then from 130 to 180, and respiration beyond the possibility of counting. Meanwhile emaciation increased; sleep became almost impossible, even with copious doses of codein, seldom lasting more than from thirty to sixty minutes, and once in twenty-four hours. At this time it was necessary to tie her head down to give her any rest at all. Ice was kept on the whole length of the spinal cord, an ice-cap was placed on the head, and in these measures the patient seemed to find more relief than in anything else. There was a broad red band across her forehead, very difficult to describe, and deep streaks down both her cheeks, of an intense red. Her eyelids sometimes remained open for long periods, and at others were shut for hours, so that she could not open them. Again, the eyes themselves would move independently, sometimes one rolling upward and the other downward, or one outward and one inward, producing a most extraordinary appearance. "Every hour for weeks," said her mother, "we expected to see her draw her last breath; nor were we alone in the belief that it was impossible that she should come out of this condition and live." "I should have mentioned also," added her mother, "to withhold nothing of interest, that she passed entire days in a comatose condition, and others in a state that could more aptly be described as a deep sleep."

During this long period the girl was fed entirely by the bowel, and was rubbed with oil and brandy, the throat and mouth being sprayed with water and glycerol every few minutes. On December 16th came what is described by her parent as the crisis. She had alarming spasms of the diaphragm, much longer than the preceding ones. Then they suddenly ceased, and did not return for three years. There was a slight relaxation at this time of all of the contractions, and the patient was rather more comfortable. In a few days afterward she began to swallow a little, but at this time she was entirely blind; she had also no sense of taste. The smallest amount of water swallowed caused extreme pain, and the slight effort of masticating or swallowing food gave rise to profuse perspiration and indescribable weakness.

It was characteristic of the hysterical nature of the case that at this time the girl could sometimes be fed by means of fancy spoons, letting her feel the patterns with her lips or tongue. About this time she began to take potassium iodid, increasing the dose as fast as the stomach could bear it.

On January 9, 1891, she was able, with effort, to tell the number of fingers held up close to her

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eyes, and on January 16th could distinguish outlines and bright colors.

On March 1st her sight became good in the right eye; it had never, until very lately, returned fully to the left eye. She could see things less distinctly with the latter.

Fearing the effect of heat upon her (as she manifestly lost ground when overheated; her legs drew up more forcibly, and she lost flesh as the warm days came on), her parents were advised to take her to the mountains for the stimulus of a rarer atmosphere and the coolness of the high altitude.

A cot was made, which was swung on solid rubber ropes to save jarring, and she was carried up Roan Mountain, 6394 feet high. She began at once to sleep well, eat well, and move with ease. At this time the hands were still twisted together at the wrists, and tightly clenched. She also had the embarrassing symptom of violent protrusion of the rectal mucous membrane, which would come down suddenly in her sleep. If it was not pushed into place at once, it seemed to be caught, and then it became congested, and its return was exceedingly difficult.

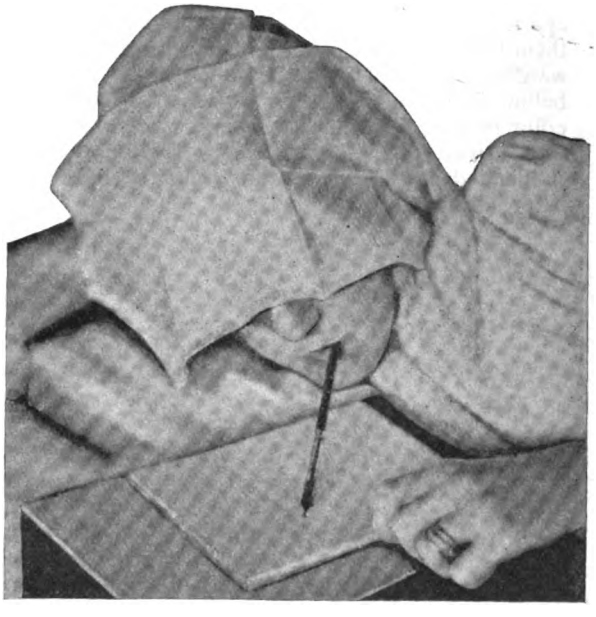
At this time the legs were still contracted and motionless; both knees were subdislocated; the left foot was laid up over the right thigh, and the right foot on the left thigh. Both feet were drawn into a sharp curve, and the toes were drawn under so tightly, and so close together, that it was impossible to draw a rag under or between them. Quantities of iron and potassium iodid were given, with occasional cessation of the treatment, to let the stomach recover its tone.

The child's parents remained on the mountain with her from June 6th to October 16th, and then returned to her native town. During these four months she had gained thirty-three pounds in weight, having weighed in June forty-five pounds and in October seventy-eight pounds. On her return she instantly ceased gaining flesh, was again attacked by influenza, and was wretchedly weak all winter, and had to be watched closely, and continually kept cool, insisting upon the windows being open day and night, although the thermometer was often at zero. Her physician urged her parents to hasten away early in the spring, and accordingly they started in April, waited a month at the foot of Roan Mountain for the snow to melt, and moved over the mountain to Glen Ayres, 4500 feet above the sea-level, on the south slope. As before, the girl began to pick up at once. Sensation, which had crept down from the shoulders the previous summer nearly to the elbows, began to be manifest below the elbows.

In June, 1892, menstruation began. The girl was then twelve years and eight months old. There was no general disturbance of the system at this time, beyond slight backache and headache, and no hysterical manifestation. The menstruation continued with perfect regularity and in good quantity until December, 1893, when it ceased, and never again recommenced. There has never been any unnatural discharge or any complaint of pain or uneasiness at the menstrual period, except that caused occasionally by retention of urine.

There was a general access of strength and flesh during the summer of 1892, and in September the family moved again to the summit of the mountain for the winter, fully determined to test the value of altitude in the child's case. In the meanwhile, unable to use her hands, the little one learned to write and draw beautifully with pen and pencil in her mouth,

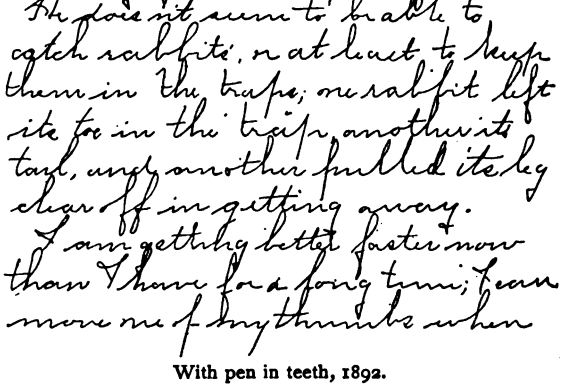
FIG. 1.



E. M. H.: Writing with pen held in mouth.

holding them firmly on the right side between her teeth, and moving the head. She complained that the other side of her mouth was "left-handed." She

FIG. 2.



With pen in teeth, 1892.

conducted in this astonishing manner a large correspondence, entirely by herself, except the folding of the letters and placing them in the envelops, the hands being still clenched and twisted as I have described. Fig. 1 illustrates her mode of writing.

The winter was extremely severe on the mountains. During January it was impossible to keep the temperature in the living-room up to 32°. Most of

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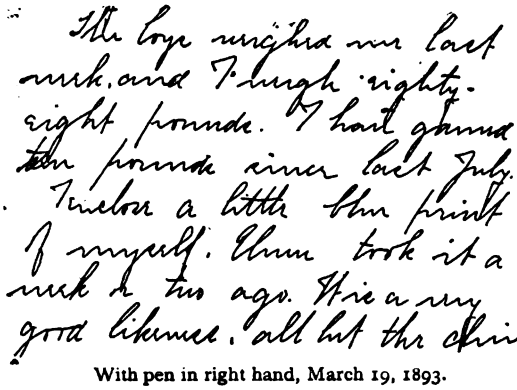
the time it was from 20° to 30°. For some weeks previously the girl had been able to move her right thumb a little, and on January 13th she opened that hand, moved all the fingers, but could not separate the wrists, which, if I have made the matter clear, I should have described as being pressed violently one against the other.

January 15th, two days later, she opened the left hand and moved all the fingers, and got the hands apart. In a very few days afterward she was using them both for writing and knitting, somewhat awkwardly of course. Sensation began to creep down below the elbows; her flesh increased rapidly, her color became good, and there was more warmth of the extremities. Her legs were still motionless, subluxated at the knees, and violently drawn, as before described.

FIG. 3.



With pen in right hand, March 19, 1893.

In April she was taken to Professor Allen, of Indianapolis, who cut the cords in the groins and under the knees. The joints had grown out of shape, so that it was impossible at once to straighten the limb; and the skin under the knees had contracted and hardened so much as not to permit of their being straightened at once, after thirty-two months' flexion. A moderate amount of chloroform came near proving fatal, and so the cords were cut in four operations, whisky being given beforehand. Then extension-braces were made to be worked with ratchets, and the patient was brought back to the mountain-top. She soon sat up in a wheeled chair, rolling it with her own hands, and in fact was soon a picture of rosy, plump girlhood.

In August, 1893, she began moving her feet slightly, and resolutely practised, with the aid of her mother, until, in October, she could move the sewing-machine treadle a little. She had to lift her legs and feet with her hands, but could move her feet and toes. There was still at this time no sensation in the legs below the groin, but it was pretty good in the arms, and she could feel a needle almost down to the knuckles of both hands. The knees had been forcibly extended daily by the use of instruments until the angle was extremely slight. This process was very painful, always giving rise to great distress in the lumbar vertebra. Several attempts to stand with assistance caused extreme torment in the same region.

On September 30th the child was taken in a buckboard wagon several hundred yards, and again on October 29th; she seemed to enjoy her first and only "rides."

On November 2d she appeared languid; her back hurt her more; she could not sit up, but preferred to lie still all day. She was carried down stairs as usual to lie on a couch, and the stretching at that time was omitted and never resumed. After this she did not sit up. Two weeks later there was a slight menstrual discharge; her appetite failed, and her strength gave way. For the first time in five months it was necessary to put ice-bags on the back of her neck. In other words, she had a very serious relapse.

On December 9th she could not be carried down stairs, and was not taken down stairs again until May. Her parents had intended to move down to Roan Station for the winter, but did not think it advisable to disturb her.

Violent palpitation of the heart came on; the pulse was 160, hard and bounding; the temperature was only 97°; the respiration very rapid. At this time the physicians who saw the girl were again satisfied that it was impossible that she could live much longer.

On January 12, 1894, she had serious ulcerations of the mouth and throat; her breathing became as rapid as from 90 to 160 per minute; her pulse quick, weak, and wiry. The urine was exceedingly scanty and dark. The legs became again motionless; the cords contracted at the knees; the hips and the arms were still free, as they had been before, but increasingly numb.

At this time there came on also a great difficulty in speech. Ice was now used on the head also, and again the child desired to have all light and sound excluded. On January 20th she spoke once: "Mamma," she said, "it hurts," and never afterward, up to the time of her falling under my own care. Nor, in fact, did she make in this period an articulate sound, asleep or awake. The vocal bands were relaxed at this time, and are said to have been ulcerated. The legs were drawn almost up to the body, but there never was as much contraction of the thigh on the pelvis as of the leg on the thigh.

The girl could still express herself in writing with her hands, but complained that they were weak and numb, and she feared, as she wrote, that they were "going again." On February 10th she had violent contraction of the abdominal muscles following an enema; convulsive shudderings for a time ran over her body, and her hands and arms in an hour were completely paralyzed.

From February 10th till March 3d she had no discharge from her bowels. On February 14th she had great difficulty in expiration; she would fill her chest to the utmost degree with air, and then remain half a minute sometimes without expelling it, and finally would drive it out in jerking whiffs, her head moving violently to and fro as she did so.

At this time there was great difficulty in swallowing, and occasionally swallowing was followed by some violent convulsive efforts, during which the blood would fly forcibly from the nose and mouth. Two hours or more were required to swallow two or

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three ounces of milk, and nourishment was mainly given by enemata. At this time some effort was made to knead the bowels, but every attempt caused contractions of the bowels so violent that the muscles would spring into stiff cords, and thus remain for hours, while the urine had to be drawn away, and was brown and exceedingly offensive, but without blood.

The difficulty in expiration of air lasted until all the spastic contractions had ceased, and the legs were motionless, like the limbs and head, the child using the diaphragm only at brief intervals. At this time codein was used hypodermically.

On March 3d there was a temporary cessation of contractions, and the bowels were moved, and this was the last motion until March 29th. During all this time the patient was fed chiefly by enema; nothing passed away, everything being absorbed with astonishing ease.

After February 10th all communication was made by the eyelids; the child could no longer use her hands or her speech, even in the faintest whisper; but when she wished to indicate anything she would wink several times, and cards were held up containing the alphabet, and when the right letter was reached she would wink.

On March 12th continuous convulsions of the head, arms, bowels, jaws, and tongue set in. All food and drink were given by the bowel and by outward application. Again there was a deep crimson flush all over the head, and it was needful continuously to keep ice on the neck and head. The facial and temporal arteries were of the size of large lead-pencils; all were throbbing so violently that their pulsations could be counted across the room.

On March 22d the convulsions were so violent as to require men to hold the child, and at this time it was observed that the urine became of an extraordinary odor, described to be like that of the cat. On March 25th she was totally deaf, partially blind, and entirely speechless. She could not feel a needle anywhere in the body, except in the lips. The skin was rough all over the body, and looked and felt like sand-paper, presenting an indescribable dry roughness.

At this time any attempt to comb the hair was followed by bleeding from the scalp, and the hair fell out in handfuls. Emaciation became extreme. All of this time the girl had an exceeding sensitiveness as to heat, and the breathing would become terribly difficult if the windows were closed, so that her family were obliged to keep the sash up and the transom over the door open on the top of the mountain, with the thermometer frequently down in the neighborhood of zero. Her nurses, as may be imagined, suffered severely under this *régime*.

On March 29th her convulsions ceased. On April 4th she had discharges of green and yellow pus, in remarkable quantities, from the ears and nose, as well as from one or two abscesses, which had to be opened, in various parts of the body; one on the side of the neck appeared to be very serious. Shortly after this her sight began to return, and it was soon found that she was reading the motions of her attendant's lips, although stone-deaf, and very soon she understood every syllable, when the light was good and faces were turned squarely toward her. From this on for months she continued to improve in this accomplishment. Her family learned for her use the deaf-and-dumb alphabet, so that she communicated with them either by speaking with her own lips, so that her mother read them, or by looking at the lips of those talking, or by seeing the motion of her mother's fingers, when her sight at length was better. Following this there was a period of many months during which she was subject to curious and frequent attacks of congestion of the superficial veins all over the body. The whole body would sometimes become mottled blue, as if a coarse blue veil were drawn over it; the lips and eyelids would grow almost black, and breathing become exceedingly difficult. It was then necessary to give stimulants quickly, and to sponge the body with cold and hot water, and renew the hot-water bottles, and do quick work, in order, as it seemed to her family, to save the child from death. A little excitement, or a too warm room, would in a minute bring on one of these remarkable attacks. The last attack of this sort occurred in September.

Early in May she began to chew a little; she could swallow no solids, and only from one-eighth to one-fifth of the fluids attempted; the diet was still chiefly by enema. On May 2d Dr. Allen, who saw her, expressed his surprise that she was still alive, and it did not seem possible then that she could live from hour to hour, although she had been really convalescing for nearly a month. She was breathing entirely with the diaphragm at this time; the lungs were congested and full of râles, and up above (that is to say, in the costal region) quite motionless.

From this time there were gradual gains, and it seems useless to repeat the roll of extraordinary hysterical symptoms. Early in June she began moving the fingers of the left hand. On June 13th she was able to "shake hands all around," as she said, and could swallow a little solid food, and nearly all liquids. On June 19th she wrote her name for Dr. Allen and for her mother, and respiration began to be deeper and more comfortable, and she was more cheerful and happy.

On September 13th she was moved down to Roan Station, 2650 feet above sea-level, where the air was not so rare as before. On September 28th, the third consecutive warm day, the mercury being at 80°, a violent inflammation of the eyeballs and eyelids and congestion of the entire face and neck came on, and lasted until the weather changed, a week later. At this time the child began to make her right hand hold the work for her left hand. The left hand and arm were quite free and vigorous, although there was no feeling as yet in any part of them.

Every warm day in October and November brought back symptoms similar to those already described, but the prompt use of cold applications stopped the attacks.

On November 26, 1894, four years and three months after the second injury, and four years and



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nearly eight months after the first injury on the boardwalk, and thirteen months after the last relapse, the sight was good in the right eye; dim in the left eye. The ear-drums were said to be congested, but she distinguished many sounds through a trumpet, if one spoke loudly; and almost all the alphabet, except *w*, after four or five repetitions. Often she could not distinguish both syllables of a two-syllabled word, not even her own name. After the first efforts her deafness seemed to increase. At this time she heard the letters better on cold days than on warm days. High-pitched voices hurt her.

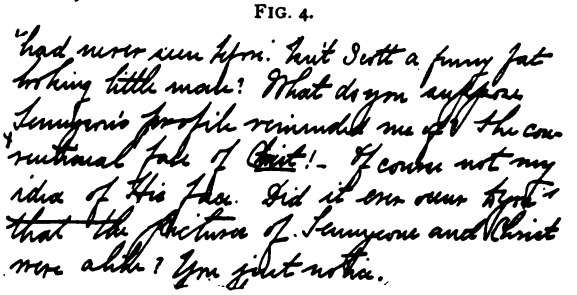
On examination of the ears no perforation of the drums was found, in spite of the free discharge from the ears. Inflation of the Eustachian tubes was attempted, but could not be borne. No effort at articulation was possible. Comparatively little food could be taken, but it was swallowed more freely, and only a little thrown out by the tongue, although some food was still given by injection.

Although there was a gradual gain in flesh and strength, sensation returned late in both arms above the elbows. The right hand recovered its motion and held the work so as to enable her to use the needle with her left hand; or else she would hold the pen in the right hand for writing, and guide the whole organ with the left, seizing it at the wrist with the left hand.

The limbs remained unchanged, the feet crossed and drawn. The patient lay nearly all the time at this period on the right side, and could not bear lying on the spine at all. There were a great many râles in the right lung, and what was described as emphysema and congestion, but the pulmonary condition was better than a month before. The temperature was usually half a degree above normal; the pulse always a hundred or more, and easily increased. The girl at this time could not bear a temperature of over 70°, whether natural or artificial, and had to have plenty of air. The stomach could not hold much food at a time; efforts to feed her produced contraction and pain and a threat of return of bad symptoms. The bowels were only moved by copious enemata; the discharges were slow and difficult, by reason of weakness. A good deal of mucus passed, frequently in large shreds. The bladder was subject to involuntary and frequent passages. The child was aware when these would begin, and could sometimes, though not often, start them, but could not stop them. The skin had become natural in texture and of a good color. There had been no bedsores recently; there had been one on the head in March, but it had healed up very readily. The right ear, I should say, had a large piece worn out of the rim—a deep notch caused by the jerking of the head on the pillow in February and March of the year before. This had long since healed. The spine was very tender; the child could not bear to have it touched; the muscles alongside of it were also very sensitive.

The mother added that at this time the girl was fifteen years of age; that she had grown symmetrically in the main; that if she ever walked she would not be noticeably under-developed anywhere. The feet were rather small, but not deformed; and the hands, like the feet, were of good shape. The child's mind was phenomenally clear and keen, her memory inexhaustible, and her patience very great. Her intelligence, as her mother said, was almost clairvoyant.

FIG. 4.



With pen in left hand, November, 1894.

In December, 1894, this child was brought to me: a bright, exceedingly intelligent, very pretty girl, less thin about the face than elsewhere, and sufficiently developed for her time of life. There was marked general emaciation, which was most marked in the right arm; the weight at this time was about sixty pounds. There was great contraction of the legs upon the thighs, so that the heels lay up against the buttocks, and the feet were crossed, one ankle over the other. The contraction of the thighs upon the pelvis was not much beyond a right-angle. The knees were closely drawn together. It was impossible forcibly to straighten the legs, even after complete use of chloroform, and the joints were secondarily affected, the knees partially luxated. The skin of the limbs about the ankles and knees was thickened, shining, and smooth, and in the cracks of the joints, as behind the knee, was excessively hard and tough, as though there was infiltration of the areolar tissues, it being difficult to feel the tendons distinctly. The temperature of the legs was good above the knees, but the feet were exceedingly cold, although there was nothing remarkable about the nutrition of the nails, either in the feet or hands. The cutaneous, muscular, and tendinous reflexes were all absent, and pins could be stuck in anywhere below the hips without evidence of pain. Neither was there any thermal sense below the groin or in the right arm.

Over and above the contraction in the muscle there appeared to be also a true paralysis of motion below the knee, as the child was incapable of making the slightest exhibition of movement of the toes or ankles. She could lift and hold both arms up from the bed. She could not grasp anything with either hand, but with a little management and support could hold a book. There was no very complete loss of power in the upper limbs to localize a touch or to detect extremes of heat and cold. Pain was here unfelt, and there was analgesia over the whole trunk. The biceps tendon-jerk and the muscle-jerk of the extensors of the hand were, however, present. Respiration was normal, about eighteen to the minute; the heart, lungs, and bowels were natural; there was no evidence of

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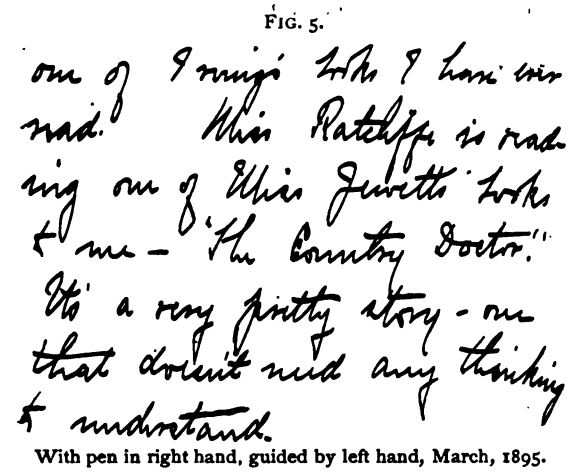
organic disease in the abdomen or elsewhere; the urine was normal. The sight was good at this time;

FIG. 5.



With pen in right hand, guided by left hand, March, 1895.

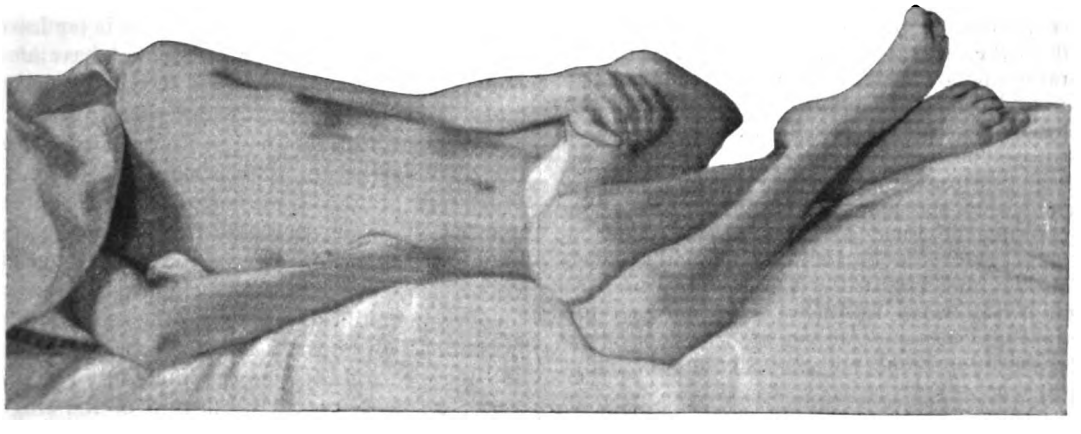
the pupils were equal, moderately dilated, and reacted well to light and in accommodation.

more difficulty, explaining that it was on account of the moustache which hides the lip.

Dr. Archibald G. Thomson examined the eyes and ears, and reported as follows: O. D. The media are clear; the pupil clear and reacting normally. The disc is normal and color good, with a small central cup. The vessels and the fundus are normal, 4–1, with astigmatism. The fields for form and color are normal. O. S. The same as the right, except that the astigmatism is a little higher. The muscular balance is slight. Exophoria due to weakness of internal rectus. There is no perforation of the tympanic membrane or other gross lesion of the ears.

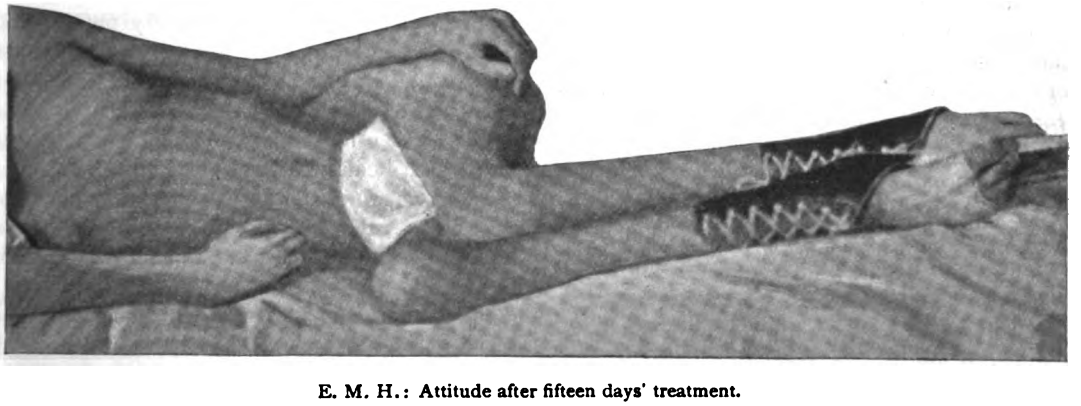
This child remained at rest in bed on her side always. To be on the back caused lumbar ache. Before attempting any more serious step I endeavored to see how much movement I could get in the legs by the continuous use of massage and faradic electricity. Very soon I found that there was a slight increase of sensation everywhere; that the limbs were beginning again to grow; that they could be drawn down each day a little lower, and

FIG. 6.



E. M. H.: Attitude before treatment.

FIG. 7.



E. M. H.: Attitude after fifteen days' treatment.

The child declared that she was absolutely deaf, and made no attempt to speak whatsoever. She read her mother's lips with ease, and mine with

that the temperature of the feet increased. After a few weeks of this treatment we ceased to gain any further power of passive extension of the limbs, and

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it became obvious to me that, however reluctantly, I must resort to surgical interference.

Meanwhile her deafness interested me greatly. It became rapidly well in a few weeks. Speech came back with nearly as great speed, so that within two months after she fell into my hands she could speak perfectly well, could hear entirely well, could see as well as ever, and was recovering pretty rapidly the use of the left arm and more slowly the right. She had made also great gain in motion and sensation in the lower limbs above the ankles.

At this time I requested Dr. Keen to make sections of the tendons of the leg, one at a time, and this was done with great difficulty under profound etherization; partial straightening of the leg was accomplished then, with weights and apparatus, but not with the ratchet. There has been a gradual extension of the left leg, and it seems likely that it will continue to improve, although the previous history prepared me to see at any time some return of hysterical phenomena.

On April 26, 1895, the left leg was so much better that Dr. Keen thought it would be well to operate on the right leg. Sections of the tendons at the knee were made, but it was found that the head of the tibia was so luxated posteriorly as to render impossible such extension as had been effected on the opposite side. After a time a suitable apparatus may overcome this unfortunate mechanical difficulty, but much will depend on her endurance, and the gain to be hoped for from massage and electric stimulation.

Of the drawings, Fig. 6 represents the attitude of the child when she first came under my care; Fig. 7 the results obtained by massage and electricity and slight extension by weights, up to the date of operation; and Fig. 1 the position in which she placed herself when using her pencil or pen with her mouth. I also add *fac-similes* of parts of letters, written with her hands and with the mouth. (Figs. 2, 3, 4, 5.)

As a clinical lesson in hysteria, nothing could be more instructive than this record. I have little doubt that early isolation and resolute treatment would have saved these years of distress. Before we pass on to consider the gravest system—the general contractures—I desire to call your attention to the fact of the absence of changes in the fields for color and form—surely an amazing thing in a case with so much anesthesia. Unlike the case first spoken of, the wasted leg-muscles, especially the flexors, can be stimulated by faradic currents; but the current that moves them so slightly is one that I cannot endure, and that painfully cramps any of my muscles on which I test it. Electro-muscular sensibility and irritability are very much lower. Those muscles of the limbs that are made tense by long contraction of their opponents scarcely stir at all with the utmost power of a battery, but when I relax them somewhat by forcible extension of the limb the relaxed extensors move better under faradic excitation. This corresponds with the curious observations reported long ago by Morris J. Lewis and myself to the effect that forcibly stretched muscles not only move badly under electricity, but also do not feel it so keenly. Had not these muscles been once shortened by tendon-section and their sequent elongation I should have begun by cutting them. I felt that again to cut these tendons would result in further additions to their lengths and that I should run great risk of seriously disabling their strength. Nevertheless I shall be forced, soon or late, to take this risk. In a long experience with hysterical contracture I have never before come face to face with this difficulty. Of course, there is always the after-resource of shortening the tendons.

Seeing how great is the power with which the muscle in a state of spasm contracts, I used to fear that its retraction after surgical section of tendons would be excessive. It is not so. Rather does the sudden cessation of tension appear to put the muscle at rest, as though the resistance were one of the means of keeping up the pull made by the muscle. I have, in fact, lost the fear I once had as to section of hysterical muscles or their tendons.

In the case of Miss C.,[1] of which I have already spoken, there was extreme pain in the feet. In another case, to be presently described, there was a like torment. In the one just now related there has been little or none. The reason is, I think, this: While the flexion at the knee is in this latter extreme, that of the thigh on the trunk is not. In Miss C.'s case not only were the knee-joints at the utmost angle of acuteness possible, but the knees touched the chin, as was nearly the case in the man in Scott Ward, of whom I shall have more to say by-and-by. Now flexion at the knee only relaxes the sciatic nerve, but extreme flexion of the thigh on the trunk keeps the nerve tightly drawn over the edge of the notch, and may well be—indeed was, I am sure—the chief cause of pain in two of the cases referred to. In both, tendon-section and even partial extension of the limb speedily put an end to the pain in question. In my last case, the absence of pain is, I think, due to the lack of extreme flexion of the thigh on the trunk.

There are other interesting features in this case with which I can deal but lightly. One was the rare symptom, deafness. It was complete; nor did the most unexpected and violent sounds enable me to detect the patient in simulation. With Malony's ear-tubes she began to hear a little, and with her general gain the deafness speedily departed. I should not, above all, forget to say that for the first time in her history she was isolated from her relatives.

(To be concluded.)

[1] Lectures on Nervous Diseases, p. 227.

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## THE PUPIL IN HEALTH AND IN EPILEPSY.

BY WENDELL REBER, M.D.,
OF POTTSVILLE, PA.

PUPILLARY inequality, technically termed anisocoria, is a sign that has been little studied in the healthy subject. In treating of pathologic conditions frequent reference is made to it, but as to its frequency in health, facilitating comparative study, there is practically nothing said of it in the text-books, and but few pages devoted to it in the literature. A comprehensive treatment of the "Pupillary Reaction" by Haddaeus[1] and a second paper by Iwanow[2] comprise the main contributions to this topic in the last ten years.

The matter of inequality of the pupils in its relation to epilepsy has in recent years been brought forward by several observers. In the *Journal of Nervous and Mental Disease* for 1893 Browning, of Brooklyn, discusses at some length the frequency of anisocoria in the interparoxysmal periods of epilepsy, and refers to the existence of this sign in its latent form. This, I believe, is the first mention of "latent pupillary inequality."[3] In opening the subject this writer states that "the condition of pupillary inequality is not very rare, even in persons of average health; that no great importance attaches to it in any class of troubles, but as an objective sign it is worthy of further study." After recording statistics he observes further: "As to the proportion of anisocoria in non-epileptics, or as to what proportion of the above cases may be due to local anomalies of the eye itself, we have no figures for comparison."

It will be the purpose of this paper first to direct attention to the percentage of anisocoria—manifest and latent—occurring in persons of average health, and then to consider pupillary inequality as seen by myself among a number of epileptics at the State Hospital for the Insane at Norristown, Pa., during my residence as interne at that institution.

Of anisocoria in health there is little to be found anywhere, as I have said. De Schweinitz[4] makes mention of it only in a foot-note, in which he briefly records the finding of Iwanow.[5] The latter investigator made his observations on 134 healthy young recruits, and found an equal width of pupil in but 12 of them. The right pupil was larger in 49, the left in 73. The face was asymmetric in 131, the left half being larger in 99, the right half in 32. Iwanow believes that "an unequal width of pupil does not always have a pathologic significance."

Fuchs,[1] after explaining the consensual reaction to light and the connection existing between the oculomotor nuclei of both sides, producing simultaneity of action, concludes that "inequality of the pupils is always pathologic." To my mind, having myself found in 50 selected healthy cases slight unequal width of pupils 7 times, it seems safe to assume that our Viennese author refers to an inequality both manifest and gross.

From my case-records I have tabulated the pupillary conditions in 50 cases presenting vision of $\frac{6}{6}$ or better, most of which applied for relief from slight refractive anomalies. The list includes both sexes. It embraces work that antedates my interest in latent anisocoria, and will serve therefore only in studying manifest pupillary conditions. The dimensions noted in each of the records mentioned have reference to the condition of the iris when unaffected by the associated acts of convergence and accommodation, as it is my practice when observing the pupil to have the patient survey a distant object. In this series of cases taken from both sexes there were found five anisocorics, a proportion of 10 per cent.

During last summer, through the kindness of the United States recruiting officer at this point (Pottsville), it was my privilege to examine the eyes of a great number of applicants for enlistment in the army. From these I have tabulated 50 cases, with the view of ascertaining the percentage of anisocoria—both varieties—existing in healthy subjects. By examining males only any conflicting findings that might be the result of special feminine characteristics were avoided. All of these applicants were fine examples of physical manhood and well-being, presented normal eyes, and had vision of $\frac{6}{6}$ or better. The following course was pursued in each case:

1. Subjects were chosen whose eyes were free from tissue-changes in all the media and tunics.

2. The complicating influence of convergence and accommodation was excluded by proper measures.

3. The observation for manifest pupillary inequality was conducted under full indirect solar illumination (diffuse daylight).

4. That for latent anisocoria was made with illumination from the ophthalmoscopic mirror as in ordinary ophthalmoscopy, using a three-fifths-inch flame on an argand burner, this amount of light at a distance of one foot being just sufficient to carry on examination in a well-darkened room.[2]

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[1] Haddaeus: Berliner klinische Wochenschrift, 1886, Nos. 17 and 18.

[2] Iwanow: Arch. of Ophthal., vol. xvi, p. 464. On the reaction of the healthy pupil.

[3] Manifest inequality refers to the occurrence of unequal pupillary areas under full monocular exposure to diffuse daylight.

Latent inequality occurs when the pupils are equal under full monocular exposure to diffuse daylight, but differ in size when in a passive condition in a darkened room, the pupil being illuminated by a feeble light from the ophthalmoscopic mirror as in ordinary ophthalmoscopy.

[4] Text-book, p. 264.

[5] Op. cit.

[1] Text-book, p. 261.

[2] It was understood that even more exact results, had it been desired, could have been obtained by estimating each time the

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In this way a minimum illumination of constant intensity is obtained. In a darkened room, with the patient's back to the light, the pupil dilates two-thirds, averaging 6 mm. The first impact of the light from the ophthalmoscopic mirror on the retina sets up primary iridic contraction, but after a few oscillations the pupil remains at about 6 mm. By throwing in the light from either side of the eye the minimum retinal stimulus is produced, and the resultant oculomotor reflex held as nearly as possible in abeyance, thus revealing the slightest discrepancies in size. Therefore peripheral retinal stimulation only was employed in estimating the latent pupillary condition.

5. In examining for either manifest or latent conditions monocular exposure was used in the determination.

6. Owing to the difficulty of observation under feeble illumination differences in the pupil of less than ½ mm. were not considered.[1]

1. The same routine examination was adhered to in each case, thus obviating the possibility of different results arising from different methods of study. Care was also taken that each examination was made under the same conditions.

A study of the table growing out of this second series of cases shows that under full exposure to diffuse daylight anisocoria was present in 7 of the 50 cases—14 per cent. Under feeble artificial illumination it was observed in 20 of the 50 cases. Of these 20, 4 exhibited inequality under both strong and feeble illumination, and therefore fall out of the count in considering latent anisocoria. This leaves 16 cases (32 per cent.) presenting demonstrable latent inequality. In explanation of this large proportion of pupillary inequality under feeble light-stimulus, it should be observed that the measurements were exact and the differences slight; in 16 cases the difference between the pupils was ½ mm., in 2 cases 1 mm., and in 2 cases 1½ mm. In this latter series the average diameter of the pupil in diffuse daylight was found to be 3 mm., while under ophthalmoscopic illumination it was 6 mm. The average excursion of the iris was therefore 3 mm.

Taking the statistics of this series, in conjunction with those of the previous one, we find in 100 subjects, free from disease, inequality of the pupils in 24 (24 per cent.).

In passing to the consideration of this pupillary sign as related to the epileptic interval, it would be well for purposes of comparison to note the findings of others. Schleich, Marie, and Oliver conducted their studies on institution-inmates. The first-named observer found the condition in but 4 per cent. of his cases, while Marie and Oliver show a frequency of 15 per cent. Musso records 22 per cent. in 70 cases, and Addison 4 per cent. in 50 cases. This wide diversity in statistics must find its explanation, as Browning has it, "in varying closeness and time of observation." Browning's study of 150 consecutive dispensary-patients at the Long Island Hospital revealed 16 cases. Of this 16, 3 exhibited Jacksonian, secondary eclampsic, and tabetic symptoms.

In my work at the Norristown Asylum I had occasion to study 22 selected cases of epilepsy. Among these were 4 which, though of traumatic origin, manifested no Jacksonian symptoms; in fact, the whole symptom-complex was that of non-focal epilepsy. The precautions as to exclusion of improper cases and adherence to a routine method of examination under the same conditions, as noted in connection with the work on healthy individuals, were rigidly observed in this last study, in the hope that the findings might approach as nearly as possible to absolute accuracy. Additional care was taken in this series that each case be examined in the interparoxysmal period.[1]

Analysis of the resultant table shows that in 22 cases of epilepsy, anisocoria of some degree was present in diffuse daylight 5 times, or in a proportion of 22⅞ per cent.

Let us now group the findings:[2]

| Observer. | No. of cases examined. | No. of times anisocoria found. |
|---|---|---|
| Marie | 53 | 8 |
| Musso | 70 | 16 |
| Oliver | 50 | 7 |
| Browning | 150 | 16 |
| Reber | 22 | 5 |
| | 345 | 52 |

Thus, in 345 observations made by different investigators, anisocoria was found in the proportion of 14½ per cent. The foregoing figures agree pretty well, and it seems safe to assume that 1 epileptic in 7 will present some manifest pupillary inequality.

So much for the general opinion as to the frequency of manifest inequality. As to latent inequality in epilepsy, there are few figures for comparison, Browning's being the only ones I have been able to find. This observer points out the varying and deceptive influence of light and shadow in making estimations, and recommends trying the light from both sides before deciding, using a dim,

photometric equivalent of the flame in the argand burner, but it was felt that for purposes of scientific accuracy the method adopted was adequate.

[1] The measurement of the pupils was made with a pupillometer marked in half-millimeters, careful account of the corneal aberration being taken.

[1] No patient was examined within twenty-four hours of a seizure.

[2] Addison and Schleich not included. It is felt that they recorded only gross differences in the pupils.

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diffuse daylight. He states that "even with this precaution it remains a relative matter so far as estimating the degree of illumination is concerned." He found 2 instances of the latent phenomenon in the last 50 of the 150 cases he examined, though he remarks that, had the condition been carefully sought for in his previous 100 cases, the proportion might have been increased.

The method of studying the passive or latent condition of the pupil in healthy subjects, noted in the second series, was rigidly adhered to in studying this phase of the pupil in epilepsy. All the precautions there thrown out were here observed, and, as in my preceding study of epileptics (of the manifest condition), examinations were made only in the intervals between seizures. In this manner inequality of the pupils was found 8 times in the 22 epileptics. Of the 8 affected cases, 2 presented unequal pupils in diffuse daylight, and cannot therefore figure in the calculation. There remain 6 cases of undoubted latent pupillary inequality in a total of 22 examined. It must be remembered that all of the 22 were asylum-cases that had been committed to the institution because of the chronicity of their affection. Of the 6 cases presenting latent anisocoria, 1 was twenty-one years of age, 1 was thirty-five years, and the remaining 4 ranged from 40 to 50 years. Hence it would appear that latent inequality appears dominantly among old epileptics in whom degenerative changes have been wrought; in whom frequently repeated functional disturbances have finally produced structural changes, and physiology has passed over into pathology. It seems also probable that the proportion of latent anisocoria here found (27⅓ per cent., or 6 in 22) represents its highest frequency, inasmuch as the terminal degenerations found in institution-inmates are favorable to the occurrence of the phenomenon.

For comparative study I shall contrast the different series.

1. *Comparing manifest and latent anisocoria in health.*

In 100 healthy subjects (my own cases) inequality of the pupils was found in diffuse daylight 24 times (24 per cent.).

In 50 healthy selected cases (all young army-recruits examined by me) the pupils under feeble artificial illumination (latent anisocoria) were found unequal 16 times (32 per cent.).

2. *Comparing manifest anisocoria in health and epilepsy.*

In 345 epileptics (examined by various observers) inequality of the pupils was found in diffuse daylight 49 times (14⅙ per cent.).

In 100 healthy subjects (my own cases) inequality of the pupils was found in diffuse daylight 24 times (24 per cent.).

3. *Comparing latent anisocoria in health and in epilepsy.*

In 22 epileptics (my own cases) the pupils were found unequal under feeble artificial illumination 6 times (27⅓ per cent.).

In 50 selected healthy cases (all young army-recruits examined by me) the pupils were found unequal 16 times (32 per cent.).

4. *Comparing, lastly, manifest and latent anisocoria in epilepsy.*

In 345 epileptics (examined by various observers) manifest anisocoria was present 49 times (14⅙ per cent.).

In 22 epileptics (examined by me) latent anisocoria was present 6 times (27⅓ per cent.).

In Comparison No. 1 we find just what would be anticipated, namely, that when the oculomotor control of the pupil is removed, even in health, pupillary inequality reveals itself more frequently.

A first glance at Comparison No. 2 would seem to indicate that manifest anisocoria is more prevalent in health than in epilepsy. It is my impression, however, that, had the same searching scrutiny been exercised in the epileptics that was bestowed upon the healthy subjects, the proportion would have been found about equal.

Similarly in Comparison No. 3, in which the greater proportion of latent anisocoria would seem to obtain in health, it is my belief that, had I employed the same accuracy in my study of the epileptics (who were examined first) that was afterward observed in the study of the selected healthy cases, the proportion here would have been about equal.

In Comparison No. 4 we again find latent anisocoria the more frequent, and also, as would be expected, the relative frequency of latent inequality is much greater in epilepsy than in health. As the passive condition of the pupil is dominated by the sympathetic nervous system, we would naturally find oftener in epilepsy, in which the equilibrium of the sympathetic nervous system is unstable, an inequality in the pupils. The phenomenon accords very well with Browning's conception that "whilst the passive (*i. e.*, sympathetic) innervation of the irides is in such cases unequal or disproportionate, the reflex impulse—equal for the two eyes—is, when fully called into play, quantitatively so far in excess as to overbear completely all passive ones, and so for the time being to wholly dictate the pupillary condition. The relative superiority of the oculomotor control of the pupil, as compared with the sympathetic, is, of course, a matter of every-day observation. This explanation interprets the morbid phenomenon as a symptom resulting not simply from bilaterally uneven sympathetic action, but as one that only appears at times when the action of the oculomotor is relatively or absolutely in abeyance."

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Hence we distinguish

1. A passive or latent anisocoria.

2. An active or manifest anisocoria.

The origin of active or manifest anisocoria must be considered in its relation to the oculomotor nuclei situated in the fourth ventricle. However, it would be foreign to the purpose of this paper more than to mention this point. It will be more fully considered in a future paper.[1]

From my studies I incline to the belief that the frequency of manifest pupillary inequality in epilepsy is nearer 20 than 15 per cent., and that when investigators have failed to show that amount their work has been lacking in closeness of observation. I further believe that about one epileptic in four will exhibit some latent pupillary inequality.

While I realize that my work is open to the criticism of insufficiency of data, I feel justified in drawing the following tentative conclusions:

1. That pupillary inequality, even of considerable degree, is not always pathologic.

2. That in order to demonstrate latent inequalities the oculomotor influence must be as nearly as possible set aside.

3. That in health latent inequality is more frequent than the manifest form, in the proportion of 4 to 3.

4. That in epilepsy the latent form of the anomaly is more frequent than the manifest in the proportion of 2 to 1.

5. That it is only of relative importance in epilepsy, and can occupy but a minor position in building up the objective picture of that disorder.

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## *RECENT MEASURES FOR THE PREVENTION AND TREATMENT OF TUBERCULOSIS.*[2]

BY GUY HINSDALE, M.D.,
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A BRIEF review of the extensive provisions for tuberculous patients abroad shows how far behind America is in the systematic care of this large class of sufferers. I do not, of course, refer to provision for those who are able to command, in addition to skilled medical attendants, the measures that promote recovery, and especially the advantages of favorable climates; but rather the hospital-class, of far greater extent, who need the housing, food, and care that they are unable to purchase. The well-to-do are at least as well provided for here as in Europe; but our State governments have not, to any appreciable extent, definitely helped the dependent class in this regard. The English began to look after the tuberculous more than a hundred years ago. An institution for their relief was established in Kent as early as 1791. The Hospital for Consumptives and Diseases of the Chest at Brompton, which was established fifty-four years ago, now has a capacity of 315 beds and an income of over one-hundred-thousand dollars. Other hospitals have been erected at Torquay, Bournemouth, and Liverpool; and in 1869 the Royal National Hospital for Consumption and Diseases of the Chest, at Ventnor, Undercliff, Isle of Wight. The last includes twenty buildings picturesquely situated, and has a capacity of 134 patients. Altogether, England has eighteen institutions of this character, which receive annually between 6000 and 7000 patients.

France has institutions at Berck-sur-Mer, Arcachon, Cannes, Argeles, founded in 1878, Touraine at Ormesson, and Villiers on the river Marne and Villepinte. The city of Paris has also erected a large sanitarium for indigent tuberculous persons at Agincourt, with a present capacity of 100, and provision for enlargement.

Germany has an institution for the tuberculous at Falkenstein in the Taunus, near Frankfort, under the care of Dr. Dettweiler. One at Ruppertshain, in the same neighborhood, is being erected for the accommodation of seventy-five. In 1893 an institution was opened at Rehburg, in Hanover, for the tuberculous poor of Bremen; it has provision for twenty-four beds. In the first ten months sixty-nine patients were admitted and about one-third were able to return to their occupations.

At Malchow, near Berlin, an institution was established in 1892 for men in any stage of tuberculosis. It has a capacity of 100, and cost $50,000. At Gütergotz, also near Berlin, a similar institution for eighty patients is projected; another, to cost 250,000 marks, is to be erected at Reiboldsgrün, at an elevation of 2160 feet, where there is already a small institution for persons of means. The city of Worms is also adopting similar measures for its tuberculous; so also in Würzburg plans are being formed to erect a sanitarium at Spessart. At St. Andreasburg and Blankenhain in the Hartz Mountains, and at St. Blasien in the Black Forest, successful institutions are conducted.

At Vienna Prof. Schrötter has made great efforts to have an institution established, and, with very liberal help on the part of Baron Rothschild, who has offered lands and money, his plans will be carried out. At Munich, Lübeck, Hanover, and Stettin similar institutions are being planned.

Much of the encouragement toward action on the part of municipalities has come from the remark-

[1] In the report of a case of "unilateral absolute iridoplegia," soon to be published, it will be necessary to review the different theories concerning the manner of the origin of the roots of the oculomotor nerve.

[2] Read at the meeting of the American Climatological Association, held at Hot Springs, Va., June 13, 1895.

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able success in the treatment of tuberculosis that has been obtained in private hospitals. Brehmer, who established his sanitarium at Görbersdorf, in Silesia, in 1854, reported after the first fifteen years that twenty per cent. of his 958 tuberculous patients had been permanently cured. Charles Theodore Williams recently stated that of 247 patients, chiefly in the early stages of the disease, who had been sent to his private Alpine Sanitaria, chiefly Davos, St. Moritz, and Arosa, "a cure was effected in 101, or 40.89 per cent.; great improvement in 73, or 29.55 per cent."

Dr. Trudeau in the last annual report of the Adirondack Cottage Sanitarium, which has just completed its tenth year of existence, states that from 20 to 25 per cent. of the patients have been apparently cured after a prolonged residence; cases in which the rational signs of pulmonary tuberculosis and the bacilli in the expectoration have been absent for three months or more, or in which there is no expectoration at all; any abnormal physical signs remaining being interpreted as indicative of a healed lesion. This, I may say, is still the only institution in this country that is strictly built on the cottage-plan. Two new buildings have been erected during the past year. The sanitarium has now twenty-two buildings, with accommodations for eighty-four patients. It has a free-bed fund of $14,000, through which it gives aid to the very poor, and an additional $25,000 has been put aside toward a permanent endowment-fund.

The new sanitarium at Paul Smith's in the Adirondacks, at an elevation of 1800 feet, is nearly ready for the reception of patients. This institution is called the Sanitarium Gabriels, and will accommodate fifty persons. It will be under the care of the Sisters of Mercy of the Roman Catholic Diocese of Ogdensburg, but is intended to be non-sectarian as regards the admission of patients. Dr. W. Seward Webb and Paul Smith have given 100 acres of land for a site. An infirmary, an administration-building, and a half-dozen cottages are included in the plans. The first will be a handsome structure, two stories in height and built of wood and stone, with a glass-enclosed solarium and arrangements for the open-air method of treatment. A nominal charge will be made for treatment.

A recent movement in New York City to erect a memorial to the late Dr. Alfred L. Loomis, a former President of the American Climatological Association, has met with a liberal response. Already one gentleman has contributed sixty-five thousand dollars toward the proposed sanitarium for tuberculous persons now being erected at Liberty, Sullivan County, New York, in memory of our lamented friend. The plan includes a central building, with a number of surrounding cottages; two of these at a cost of from three-thousand to five-thousand dollars apiece are being constructed. The elevation is two-thousand feet, and is reached by rail in five hours from New York City.

New York has also a large institution, the Seton Hospital, for tuberculous patients, at Spuyten Duyvil, near the Harlem River. It has accommodations for three-hundred. The State of Massachusetts has recently appropriated $150,000 for a similar institution. Colorado has two such institutions: the Glockner Sanitarium, with a capacity of forty, and the Bellevue Sanitarium, with a capacity of twenty-five. The latter, however, is not open at present through lack of funds for maintenance.

The Pennsylvania Society for the Prevention of Tuberculosis was organized April 10, 1892. Its object is the prevention of tuberculosis, first, by promulgating the doctrine of the contagiousness of the disease; second, by instructing the public in the practical methods of avoidance and prevention; third, by visiting the tuberculous poor and supplying them with the necessary materials for protecting themselves against the disease, and instructing them in their use; fourth, by furnishing the tuberculous poor with hospital-treatment; fifth, by co-operating with Boards of Health in such measures as they may adopt for the prevention of the disease, etc.; sixth, by advocating the enactment of appropriate laws for the prevention of the disease. Efforts have been made by the Society to have tuberculosis placed upon the list of diseases returnable to the Philadelphia Board of Health, and to empower the Board to disinfect houses in which deaths from this disease have occurred. Such measures have been carried out in New York City for the past six months with success, and are now to be carried out in the city of Buffalo, N. Y., where the Department of Health is adopting energetic measures toward the prevention of tuberculosis. Since June 15, 1895, all cases of tuberculosis occurring in the practice of any physician in the city must be reported to the department. On receipt of such notice a circular of information will be sent to the families and those in charge of the patient, giving strict rules as to sanitation, etc. Recognizing that the consumption of meat and milk from tuberculous animals is one of the frequent sources and modes of tuberculous infection of the human being, especially of bottle-fed infants and children of tender age, the Society resolved to urge upon the Legislature of Pennsylvania the necessity of the early enactment of laws to secure the exclusion of the meat and milk of tuberculous animals from this Commonwealth. Under these laws about 500 living cattle and a large number of fresh carcasses have been condemned as unfit for the dairy and the market.

Commencing with June 1, 1895, a new law, estab-

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lishing a State Live-stock Sanitary Board, went into effect. This Board is composed of the Governor, the Secretary of Agriculture, a Dairy and Food Commissioner, and the State Veterinarian. To administer this law an appropriation of $50,000 will be at the disposal of the Live-stock Sanitary Board during the next two years, for dealing with the various contagious and infectious diseases, and for the first time in the history of Pennsylvania there will be a conservative and systematic plan of dealing with these diseases.

It is interesting to note in this connection that the Royal Commission on Tuberculosis reported in April, 1895, to the British government the conclusions of its important investigations, namely, that it is satisfied that the cause of an appreciable part of tuberculosis in man is conveyed through his food—*i. e.*, the meat of tuberculous cattle. The Commissioners believe that the danger lies not only in diseased organs unremoved in the dressing, but also in conveying to healthy parts tuberculous matter by means of the knives and clothes used by the butchers in dressing.

The Society for the Prevention of Tuberculosis has widely distributed its tracts, namely, 50,000 of tract No. 1, entitled "How to Avoid Contracting Tuberculosis;" and 40,000 of the other, entitled "How Persons Suffering from Tuberculosis Can Avoid Giving the Disease to Others." A great interest has been taken in the Society by physicians in all parts of the world. Boards of Health in almost every State in the Union have made application for these tracts, and have been supplied. Within a few weeks a request from Boston for 500 tracts was received, and very gladly complied with. Physicians in all parts of the South and West, in various portions of Canada, and even so far as the Hawaiian Islands, have made application for them.

Vigorous efforts were made during the past winter to secure the establishment in Philadelphia of a Municipal Hospital for the tuberculous poor. A committee of the Society also visited Harrisburg to urge the necessary State legislation to establish a State Sanitarium for tuberculous persons, to be located at a favorable elevation in the mountainous portion of the State. As a result of this visit the State Board of Public Charities of Pennsylvania recommended to the Legislature an appropriation of $50,000 to carry out the provisions of the bill. While these measures have not yet been successful, there is good reason to believe that the State will take the matter up as soon as some other important charitable measures, as, for instance, the new school for feeble-minded children in Western Pennsylvania and the new hospital for the epileptic insane, are accomplished.

The Society meets annually on the first Friday in May. Any person who pays one dollar or more into the treasury of the Society will be enrolled as a member for the year in which such payment is made. The by-laws provide that all money in the treasury, beyond that which is necessary for defraying the general expenses until the next meeting of the Board, shall be set aside for the use of a Hospital Fund. When the money in the Hospital Fund shall amount to $150 or more a tuberculosis patient shall be placed in a hospital for every $150 in the Fund.

There is no doubting that, as a result of the influence of this Society, of the American Climatological Association and of kindred organizations, and the issuing of so many thousands of tracts disseminating the principles of the communicability of tuberculosis and the best means of preventing it, the people of the United States are beginning to take very much more interest in the tuberculous patient personally, and that they see the necessity of organized effort to lower the mortality and eventually stamp out the disease. The city of Philadelphia, at least, is showing a marked response to the efforts made to lower the death-rate from tuberculosis. In this city, notwithstanding its growth in population, the actual number of deaths from pulmonary tuberculosis has gradually diminished since 1880. There were in each 100,000 of population 342 deaths from this cause in 1870, 317 in 1880, 264 in 1890, and only 220 in 1894.

We cannot tell in the State of Pennsylvania just how the mortality is tending, owing to our deficient system of registration; but we know that in Philadelphia there are about 6000 sick with tuberculosis, and in the State at large about 20,000 have the disease. In New York State the ratio of deaths from tuberculosis to the total deaths has steadily fallen since 1890. These facts are significant of the change that has come over the profession in the manner of looking at the disease and of treating it, and also of the attitude of the public itself, which is rousing from its long indifference. The people need plain teaching on this point, for most of them cling to the traditional idea that tuberculosis is strictly an hereditary disease, and consequently unpreventable. The large majority of people do not yet believe that it is contagious, and although, when requested, some persons may observe some of the sanitary precautions we advise, they do it often in a perfunctory manner. The other members of the family, who frequently take little account of the idea of the contagiousness of tuberculosis, do not co-operate in carrying out these measures. Greater efforts must therefore be made to reach the people.

More societies for the prevention of tuberculosis should be organized. We need to organize and maintain special hospitals and cottage sanitaria for tuberculosis. The first step is to find out the localities where medical measures will receive the greatest

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aid from natural resources, from air and altitude and sunlight. The patient who is weakened in body, deprived of his usual means of livelihood, face to face with a long illness, with little to supply for himself or his family the necessaries of life, not to speak of other needs relating to his disease, needs special help, and it is no wonder that little can be done in our cities to stay the course of this disease. The best solution of the problem, I believe, will be to take these afflicted beings out of cities to brighter skies and evergreen forests, where Nature and art, hand in hand, may work together for their good, and, it may be, for their final cure.

## CLINICAL MEMORANDUM.

### *INVERSION OF THE UTERUS.*

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THE report of a case of inversion of the uterus by Crouse, in THE MEDICAL NEWS, June 8, 1895, suggests to my mind a case that came under my observation in March, 1894. The patient, aged seventy-two years, a German, was brought to the Buffalo General Hospital. The ambulance-surgeon reported that he had found the woman in a most deplorable and filthy condition, in a small, ill-kept cottage, where she had lived a secluded life for fourteen years. The neighbors said that she would only make her appearance at long intervals, when forced to go out for provisions. She was a widow, with grown and married children, the youngest forty-one years old, and who were unable to live with her, owing to her eccentricities.

Upon entrance it was observed that the woman was evidently demented; she could not give a clear history of herself and not even of recent occurrences. In giving her her initial bath the nurse discovered a large tumor protruding from the vaginal outlet. My attention was called to the fact and a careful examination was made. I found a tumor the size of a large cocoanut in the position stated. It was covered with thick, dirty crusts or scabs, showing evidence of former ulceration and Nature's effort at healing, and presented a few circumscribed ulcerating areas varying in size from a dime to a silver quarter-dollar. The last were moist, sloughing, and foul-smelling, showing the very worst evidence of gross neglect. The remainder of the surface was covered with dry scales. Surrounding the circumference of this tumor was a thickened, pigmented ring, which appeared to be the former site of the cervix. Upon advice of Drs. Hopkins and Cary I anesthetized the patient, and after thoroughly cleansing the surface formed the fingers and thumb of my left hand into a cone and applied them to the most dependent part (the fundus), with the right hand in the suprapubic region. The parts were now entirely relaxed, and by careful manipulation the tumor was restored to the interior of the abdomen. Then the condition was found to have been one of complete inversion of the uterus and vagina. When replaced to their normal position the parts were so relaxed and so roomy that, with my fist clenched *in utero*, my whole forearm within an inch or two of the elbow was within the vulval opening. A most peculiar sensation was conveyed to my hand by the dry, wrinkled endometrium, which had for so long a time been the much-stretched external covering of the tumor. The hand was gradually withdrawn and large tampons were packed within the uterine cavity, to give to it bulkiness and to prevent its coming down again. Gradually these tampons were removed, and the uterus never again made its appearance externally during her three weeks' stay at the hospital. During the last week or ten days of this period the patient sat up and walked about the ward.

A few features of the case are interesting:

First, the perverted mental condition markedly present upon the woman's entrance entirely cleared up, and when discharged she conversed freely in her native tongue, showing no evidence of any perversion; but she could never give a clear history of her health for a few years prior to her coming to the hospital.

Second, a most interesting point was that on the second day following the restoration of the uterus the woman began to pass vesical calculi, and for two days afterward she passed in all twenty-four, varying in shape and ranging in size from a small split pea to a large white bean; many were facetted. They were made up of uric acid with a phosphatic crust. These were in all probability formed in the sacculated portion of the bladder caused by the dragging down of the soft parts, this sacculation becoming more or less obliterated when the tumor was replaced.

Third, it would seem hardly credible that with the amount of stretching and relaxation of the soft parts operative interference in the way of shortening ligaments was not called for, and that simple tamponade was sufficient.

## MEDICAL PROGRESS.

***Acute Nephritis due to Eczema.***—BRUHNS (*Berliner klinische Wochenschrift*, 1895, No. 28, p. 606) has reported seven cases of eczema, presenting also acute nephritis, in six of which it is believed that this developed with certainty as a sequela, while in the remaining one there was some doubt. In three of the cases no treatment to which could be ascribed the renal lesion had been employed prior to the onset of the albuminuria. In the fourth case diachylon-ointment had been employed, but this could with certainty be excluded as a cause of the nephritis, as no other symptoms of lead-intoxication were present and the amount used was inconsiderable; besides the renal symptoms only appeared four weeks after the beginning of the treatment. In the fifth case a tarry ointment and in the sixth case one containing styrax were used, and it is unlikely that either of these would be responsible for the nephritis. In the sixth case styrax was at first used and later balsam of Peru. In the seventh case a nephritis in the process of recovery was found, and this is included among the number on account of its similarity to the other cases.

***Cerebro-spinal Meningitis in an Infant Six Days Old.***—ROTCH (*Archives of Pediatrics*, vol. xii, No. 8, p. 585) has reported the case of an infant, weighing 8¼ pounds at birth, and apparently healthy until the sixth day,

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when it refused to nurse and vomited the little that it took. It cried out when asleep and at times would awaken with a sudden start. The temperature was elevated. On the following two days the infant had in irregular succession convulsions to the number of fifty, in the intervals of which it seemed perfectly well. The contractions were clonic and general in character and death took place in one. Upon post-mortem examination the inner surface of the dura mater appeared covered with opaque yellowish patches, the lymph being specially marked over the base of the skull. The vessels of the pia were markedly injected, and the meshes of this membrane were filled with an opaque, greenish-yellow purulent exudation, extending over the entire brain and into the spinal canal. Microscopic examination disclosed the presence of pneumococci.

***Inoculation of Tuberculosis through Tattooing.***—COLLINGS (*British Medical Journal*, No. 1795, p. 1200) has reported three cases in which local tuberculosis developed as the result of tattooing by a tuberculous person, who used Indian-ink rubbed up with saliva in the palm of his hand. The tuberculosis was conveyed by a lad, fifteen years old, who subsequently died of advanced pulmonary tuberculosis. A short time before his death he tattooed two of his brothers, aged thirteen and ten years, respectively, and a friend, aged fifteen years. The arms at the site of inoculation presented pustules and scabs. In all three cases there was enlargement of the epicondylar and axillary glands. The general health of the boys did not suffer appreciably. The lesions were all seen by Mr. Jonathan Hutchinson, who expressed the opinion that they were due to the inoculation of tubercle. A piece of skin from the arm of one was examined and presented well-marked giant-cells in the corium, but tubercle-bacilli could not be demonstrated.

***Return of the Tendon-reflexes in the Course of Locomotor Ataxia.***—RAICHLINE (*Comptes Rendus Hebdomadaires des Séances de la Société de Biologie*, 1895, No. 23, p. 508) has reported a case of locomotor ataxia complicated by hemiplegia of cerebral origin, in which not only did secondary contractures develop, but also the tendon-reflexes returned. The deep reflexes of the upper extremity became exaggerated immediately after the onset of the hemiplegia, which involved the left side, was complete, and set in without prodromes, without loss of consciousness, and without involvement of speech. The patellar reflex upon the paralyzed side returned in the course of four months and became normal or nearly so. At the end of six months the tendon-reflexes had partially returned upon the unaffected side, notably those of the biceps, the triceps, and the supinator longus.

***The Toxin and the Antitoxin of Cholera.***—As the result of an experimental investigation, RANSOM (*Deutsche medicinische Wochenschrift*, 1895, No. 29, p. 457) has found that it is possible to obtain from cholera-cultures a fluid free from bacteria possessing specific toxic properties. The clinical manifestations induced by this fluid are similar to those resulting from the ingestion of living cholera-organisms. From this fluid it is possible to isolate a substance whose action is identical with that of the original fluid. Animals susceptible to cholera and treated with the cholera-toxin yield a serum that is antagonistic to the action of both the cholera-poison and the living cholera-organisms.

## THERAPEUTIC NOTES.

***The Treatment of Typhoid Fever with Cold Baths.***—VOGL (*Blätter für klin. Hydrotherapie*, Jahrg. v, No. 6; *Berliner klin. Wochenschr.*, 1895, No. 29, p. 643) gives the following statistics bearing upon the treatment of typhoid fever with cold baths, based upon recent experiences.

Jürgensen (Tübingen) with expectant treatment had a mortality of 22.1 per cent.; with partial bath-treatment a mortality of 7.1 per cent.; with methodic bath-treatment a mortality of 1.8 per cent. Brand (Stettin) with methodic bath-treatment had a mortality of 3.5 per cent. Ratjen (Hamburg) with methodic bath-treatment had a mortality of 4 per cent. Drasche (Vienna) with methodic bath-treatment had a mortality of 9.3 per cent.

From France, where the cold-bath treatment was only adopted late, the following figures were obtained: Tripier and Bouveret (Lyons), before the institution of the cold-bath treatment, had a mortality of 25 per cent. and afterward a mortality of 7.5 per cent. Richard, among 38 cases treated by expectancy and baths, had a mortality of 10.2 per cent., and among 38 cases treated methodically with the cold bath a mortality of 5.2 per cent. Juhel-Renoy found with expectant treatment a mortality of 14.2 per cent.; with methodic bath-treatment a mortality of 7.3 per cent. (collective investigation); and had with methodic bath-treatment a mortality of 4.7 per cent. (personal observation).

The following American figures are cited: Kellogg (Philadelphia) before institution of the bath-treatment a mortality of 17 per cent.; after institution of the bath-treatment a mortality of 4.5 per cent. Elliot (Philadelphia) before institution of the bath-treatment a mortality of 24 per cent.; after institution of the bath-treatment a mortality of 6.5 per cent. Osler (Baltimore) before institution of the bath-treatment a mortality of 21.8 per cent.; after institution of the bath-treatment a mortality of 7.4 per cent. Thompson (New York) before institution of the bath-treatment a mortality of 19 per cent.; after institution of the bath-treatment a mortality of 7 per cent.

In Munich, between the years 1841 and 1860, as the result of medicinal treatment, the mortality of typhoid fever was 21 per cent. From 1860 to 1875, with partly expectant and partly bath-treatment, the mortality was 15.2 per cent. From 1875 to 1881–82 with bath-treatment, partly combined, the mortality was 6.5 per cent.

***In the Treatment of Alopecia Areata,*** SABOURAUD (*Corresp.-bl. f. Schw. Aerzte*, 1895, No. 15, p. 479) first applies a cantharidal plaster to the bald area. On the following morning the blister is incised, the epidermis removed, and the exposed corium painted with a solution of silver nitrate, 1 to 15. This method has been employed in about 100 cases with better and more rapid results than from other methods. The treatment is based upon the assumption that the disease is one of the integument and not of the hair.

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## *INSTINCT AS A GUIDE IN HEALTH AND DISEASE.*

ONE of the most interesting problems presented to the medical man is the question, How far is Nature to be trusted? It is universally admitted that without her assistance we can do nothing, and that in the main her impulses are in the right direction. But are they always so? How far may we encourage our patients to follow their appetites and desires? Popular opinion says, "not at all," and our practice in the past has certainly given some ground for the rule. Our attitude toward the likes and dislikes of our patients is generally believed to be that of the nursery-maid, who sent the eldest member of her flock to "find Tommy and Flossy, see what they're doing, and tell 'em they musn't." As a matter of fact, the position occupied by the medical profession to-day is totally different from this, and we think it high time that official statement were made to that effect.

What then is the true value of instinct as a guide? Instinct is the crystallized experience of thousands of generations—or, to vary the metaphor, it is the golden seed-wheat chosen of a million harvests, threshings, and winnowings. It ranks lower than reason, because less of individual volition or judgment enters into it; but as a guide it is far safer, and is a spring of action far more reliable and effective, and so far as it goes it has no superior. Our lifelong struggle to form "good habits" is, by accurate analysis, merely an effort to change rational preferences into instincts. The beauty, the accuracy, and the beneficence of the instincts of the lower forms of life have been the marvel and the admiration of every observer and philosopher. Out of a thousand instances we need merely suggest the architectural instincts of bees and ants, the migrations of birds and fishes, and the chrysalis-making of moths and butterflies. But it is calmly assumed that in our own species alone instincts have utterly lost their force and value. Our pride would not permit us to depend upon or even to recognize them, lest we should seem to admit our kinship to "mere brutes."

Fortunately for us, our instincts still remain with us, in spite of our haughty refusal to recognize them officially, and control two-thirds of our actions; and it would be to our credit and benefit in every way if they controlled the majority of the remainder. Every time we neglect them we suffer. It is, of course, unnecessary to say that the great mass of our most important vital movements, such as breathing, swallowing, suckling, eating, drinking, walking, etc., would be impossible without instinct; but beyond all this, whenever we can find an instinct to follow, it is, nine times out of ten, safe to do so, even under civilized conditions.

Every physician must know that if civilized man would only follow his instincts in respect to fresh air, sunlight, exercise, food, water, bathing, etc., he would be far healthier, happier, and even more moral than he now is. Our dyspeptic race would be better in every way for a greater indulgence in "the pleasures of the table" (including *at least* twenty-two minutes for dinner), for more cat-like basking in the sun, for a good deal more "barbaric indolence," for more rebellion against the fiendish old saw that "Satan finds some mischief still for idle hands to do," for a more frequent giving way to the impulse to fling the yardstick out of the window and the ledger under the desk, and away to the woods, the fields, and the mountains! If the grown man would but run away and "go swimmin'," as the boy does!

An excellent illustration is the case of intoxicants and narcotics. Did any one ever hear of a baby

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with an instinct for whisky or a child that enjoyed the taste of tobacco or the smell of a cigar? Tongue, nose, and stomach unite in their disapproval of all three, as the comic horrors of a boy's first smoke and the racking headache of the freshman's spree abundantly testify. It is only by systematic and repeated repression of instinct by "reason" and "higher intelligence" that these or cognate habits form; yet we have the colossal impudence to say that a man who is reeling drunk has "made a beast of himself." This is by no means an exceptional instance; indeed, it would hardly be too extreme to say that a large proportion of the diseases of civilization are due to the neglect or deliberate repression of some instinct.

However valuable instincts may admittedly be in health, the almost universal impression in both popular and professional circles is that they are just the reverse in disease. The sick man is popularly supposed to want just those things he should not have, and to dislike those things that are "good for him."

Indeed, altogether too much of both household and professional medical treatment was originally constructed on that very principle. Its chief reliance was placed upon "bitters" of all kinds, blisterings, bleeding, starving, etc.; in fact, the more disagreeable the drug or process, the more violent its effects, the greater its curative power was supposed to be. Even at this day a "medicine" must usually be bitter or it isn't much thought of by the laity, and a "hygienic dietary" is commonly constructed simply by forbidding everything that the invalid has any desire for.

The simple truth of the matter, unflattering as it may be to our professional pride, is that even up to the middle of the present century the old demon-theory of disease had far too much influence upon our therapeutics. Disease was still regarded as an entirety that must be driven out of the body of the patient by more or less violent or repulsive means. This distrust of the instincts in disease is not medical, but priestly. The wonderful "progress of modern medicine" has consisted very largely in getting rid of this idea. Wounds, for instance, instead of being poured full of wine, or oil, or turpentine, or other irritating substances, or burned with hot irons, or kept gaping for weeks, "to establish suppuration," or dressed with earth, cobwebs, pitch, or even excrement, are now simply thoroughly cleansed, closed as accurately as possible, and protected by the softest and lightest of dressings. In short, we simply follow our natural impulses, imitate the lower animals, and the result is that our mortality-rate after both accidents and operations is reduced more than 50 per cent.

In fever, for instance, the parched and gasping patient, instead of being swathed up to his neck in blankets, kept in carefully heated and darkened rooms, with doors and windows religiously closed, forbidden cold water, or, indeed, cool drinks of any kind, as if they were deadly poison, and systematically starved upon a "fever-regimen" of slops and washes of every description, is now-a-days placed between the coolest of sheets, and with the lightest of covering in cool, breezy, sunshiny rooms, is systematically fed with the most nourishing and digestible of foods, given water and fruit-juices freely, and not only bathed, but even put to soak in cold water.

Our most modern and most successful treatment of typhoid fever consists merely of a liberal milk-diet, encouraging the patient to drink at least a gallon of water a day, and plunging him into a cold bath whenever his temperature rises above a certain point. Again, we simply respond to the demands of poor, hot, thirsty Nature; and by so doing have lowered the death-rate from 16 per cent. to less than 5 per cent.

Even in morals the value of instinct as a guide is considerable, although there is here a certain amount of conflict between the individual or selfish instincts and the social or altruistic ones. While it is true that the interests of our vital desires or appetites are often so great as to cause us to disregard the rights of others in their gratification and thus violate our high or social instincts—"to sin," in theologic language—yet it is also true, as beautifully pointed out by Darwin, that the former are essentially temporary in their range and capable of but feeble recollection. The latter, on the other hand, are absolutely ceaseless in their action, and produce by their violation most lasting and powerful sensations, such as shame, remorse, loss of self-respect, feeling of isolation, etc., which become even more vivid with each successive recollection. In fact, the higher instincts, though at the time feebler, are in the long run more than a match for the lower. It would, indeed, be strange if the instincts that have *created* morals were not still to be trusted in their further extensions and outworkings.

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# EDITORIAL COMMENTS.

***The Influence of Medical Libraries on Medical Literature.***—All experiments on human beings are likely to produce unpredicted results. We venture, however, a prophecy: If the movement to introduce the study of medical literature into the medical course should succeed, each medical school would have its library, in which each student would be required to work at daily tasks. In a short time the result would be a critical literary spirit in the medical profession. If medical students learned as much of medical literature as students of biology now learn of the literature of biology, many medical works would have a diminished sale, and other works would have an increased sale in spite of a large cost-price. The trash that now forms a great part of the periodic literature would be excluded on the protest of the readers; or, it may be, only those journals would be patronized that furnished valuable medical thought in good form.

Some publishers may be so short-sighted as to think that every book that they put into a medical-college library will diminish many-fold that book's sale. This can only be the case when the book is unworthy. The college-library, in conjunction with the study of medical literature in the college-course, would increase the sale of the best medical literature, and, it is to be hoped, would diminish in some degree the sale of books of low degree now being so persistently exploited upon the medical profession. The systems and text-books of the commercial doctors and cheap publishers are debauching now the taste of the profession. Some radical means must be taken to counteract this influence. The study of medical literature in the medical schools is a promising educational advance, and a powerful adjunct to a better professional life. No other means of study gives so much interest to medical and surgical investigation. The broad outlook on life, and on professional life especially, that every young medical man should possess, is best inculcated by a study of the inheritance transmitted through our literature.

Those publishers would be short-sighted, indeed, who would not encourage this departure in medical education, so well adapted to magnify all that is good in their business. Those medical men who are now encouraging by their labors and their wealth the advancement of education in other directions can do their own profession a service by helping on this movement.

***The Economic Advantages of the Metric System.***—A select committee of the House of Commons, composed of seventeen members, held fourteen sessions, and after careful examination of many witnesses, and despite the proverbial dislike of Englishmen to change, all but one member voted to report that the metric system should be at once made legal, and within two years compulsory. The committee recites the economic disadvantages of the English system of weights and measures, and goes on to say that "not only is foreign trade in every branch seriously handicapped, but that the home-trade would be benefited by the adoption of more simple and uniform standards. . . One year's school-time would be saved if the metric system were taught in place of that now in use." From this judicious and judicial statement we may easily calculate one item of the cost of keeping up the antiquated and clumsy system of our weights and measures. If in every life one year's time is lost, and if we have forty-million of adults in our population, we are wasting thirty or forty million years every forty years, or a million years a year. As the average length of life is about forty years, this is equivalent to an annual expense of 25,000 lives. This looks laughable, but is there any hitch in the logic? If we lost 25,000 lives a year by cholera, what a hullabaloo would be raised! This is besides the commercial losses from trade, and also does not include the teachers' salaries! In medicine and science generally the expense is incalculable. The time wasted by one-hundred-thousand physicians in calculating the dosage and in writing prescriptions with our absurd grains, scruples, drams, ounces, pints, drops, and spoonfuls, would permit us to go to bed earlier every night or take a vacation each summer.

***The Causes of Death in Coroners' Reports.***—The report of the Coroner of the city of Philadelphia for the year 1894, as published in the report of the Bureau of Health, shows that 2231 inquests were held by that official during the year. The causes of death are given in 1181 cases, and then the statement is made that "other causes" were responsible for 1050 deaths! We have not been able to find in any text-book or encyclopedia at our disposal any reference to "other causes" as a factor in producing death. That this condition should be so mortal as to be responsible for nearly one-half of the deaths in the Coroner's cases, and yet be unrecognized by the medical profession, is quite startling. The unknown causes number a little more than one-hundred. The known causes include heart-disease, apoplexy, pneumonia, alcoholism, accidents of various kinds, suicide, and homicide. Now what other violent or sudden deaths are contained in the general term "other causes" we are at loss to understand. In Chicago and Brooklyn, it is rumored that railroads and other corporations find it advantageous to report fatal accidents as deaths from "other causes," although they often use such convenient phrases as "shock" and "concussion" in the death-certificates. In previous reports of the Coroner "other causes" has likewise figured as being responsible for from 40 to 50 per cent. of deaths coming under his notice.

# SOCIETY PROCEEDINGS.

## *BRITISH MEDICAL ASSOCIATION.*

*Sixty third Annual Meeting, held at London, July 30 and 31, August 1 and 2, 1895.*

(Concluded from page 194.)

FOURTH DAY—AUGUST 2D.

DR. EDWARD ALBERT SCHÄFER delivered the Address in Physiology, which was entitled

ON INTERNAL SECRETION.

He pointed out that a secreting organ separates certain materials from the blood, and pours them out again—usually after effecting a change of some sort in them—upon external surfaces, or at least upon surfaces that are connected with the exterior. These form the secretions

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that are most commonly known under that name. On the other hand, some secreted materials are not poured out upon an external surface at all, but are returned to the blood. These may be termed internal secretions, and they may be and are of no less importance than the better known and more fully studied ordinary or external secretions. The name of gland is the one that is usually applied to a secreting organ; and to those that furnish only internal secretions the name "ductless gland" has been applied. It is not, however, the ductless glands alone that possess the property of furnishing internal secretions. Every part of the body does, in fact, take up materials from the blood, and does transform these into other materials. Having thus transformed them they are ultimately returned into the circulating fluid, and in that sense every tissue and organ of the body furnishes an internal secretion. Moreover, certain important glands, which are provided with ducts, possess not only the faculty of yielding an external secretion, but have equally important, if not even more important, functions in connection with internal secretion. Thus both the liver and the pancreas are more essential to life, by virtue of the internal secretions that they furnish to the blood, than by their better known external secretions. The entire removal of either of these organs causes death, and this is due to the removal of the influences that they exert on the metabolism of the body by the loss of their internal secretions, and not to the cutting off of their external secretions. In the case of the liver it is well known that the bile may be diverted by a fistulous opening without any serious interference with the vital functions; and the same is the case for the pancreatic juice. The kidney is another instance.

The same result is not obtained with all glands. The salivary glands may be entirely removed without any marked symptom supervening. This is also well known to be the case with the mammary glands. On the other hand, removal of the generative glands leads to marked alterations in the development of other parts of the body. In the last-mentioned case the changes are probably produced through the nervous system, and are not connected with the internal secretion of the glands; and with respect to the salivary and mammary glands, we may assume that although they yield an internal secretion of some sort to the blood, it is of the same nature as that yielded by other organs, and that such other organs may act vicariously for those removed. This is, however, inapplicable to the liver, the kidney, or the pancreas; removal of which or restriction of their internal secretions is inevitably followed by a fatal result.

The liver affords an excellent illustration of the fact that internal secretions may, like ordinary or external secretions, either serve some useful purposes in the body (secretions proper) or may be formed only to be got rid of (excretions). The formation of sugar is an example of a useful internal secretion; that of urea of what would be termed in the ordinary sense an excretion, although urea is not actually got rid of by the liver, but is produced by that organ, to be got rid of by the kidney.

Among the racemose secreting glands the pancreas offers a characteristic peculiarity of structure. Besides the secreting alveoli and ducts, the pancreas possesses a peculiar epithelium-like tissue which occurs in isolated patches throughout the organ, and which is characterized by its extreme vascularity. We know of no other externally secreting gland that contains such islands of epithelioid tissue.

It was formerly believed that the sole function of the pancreas was to yield pancreatic juice, and this is in itself a sufficiently important function, seeing that this fluid contains ferments which act on all the principal organic constituents of the food. It had indeed been remarked that cases of glycosuria occurring in the human subject were frequently associated with disease of some kind of the pancreas. Frerichs found that 20 per cent. of the total number of cases of diabetes that came under his notice were accompanied by obvious changes in the pancreas. Rokitansky found in 13 out of 30 cases that the pancreas "was strikingly small, hard and bloodless; and in many cases it has been found so shrunken and altered as to be hardly recognizable save by its connections" (Silver). Claude Bernard had attempted as long ago as 1855 to remove the pancreas entirely, but all his attempts were unsuccessful, in so far that the animals speedily succumbed. In 1889, however, the operation was successfully performed by von Mering and Minkowski. They found that in all cases in which the entire pancreas was removed the operation was followed within the space of a very few hours by the appearance of sugar in the urine, and this to a great extent—as much as from 5 to 10 per cent. being found even in fasting animals.

Accompanying the condition of glycosuria there is also produced polyuria; and these conditions occur even under a purely flesh diet, and are accompanied, as might be supposed, by rapid wasting, and followed within the space of fifteen days or less by death. This result is not due to the loss of pancreatic secretion, for the pancreatic juice may be diverted by a fistula, and the animal may remain in perfect health. Nor is it due to the loss of the secreting structure; for it has been found possible to destroy the secreting structure of the organ without the supervention of diabetes. This was done successfully by Schiff in 1872. Schiff's method, which was a repetition of experiments by Bernard, was the injection of paraffin into the duct of Wirsung. In Bernard's original experiments all the dogs operated upon speedily died; but this was probably due to accidental causes, and not to the actual destruction of the pancreatic tissue, for in Schiff's experiments the dogs survived and remained in perfect health. The fact that removal of the pancreas is followed by glycosuria was not at that time known, and the appearance of sugar in the urine was not therefore looked for by Schiff. But there can be no doubt of the absence of any severe form of diabetes, because the animals underwent no wasting.

Recently the experiment has been repeated by Hédon and by Thiroloix. Thiroloix found that, although the gland was reduced by the process of atrophy supervening on the injection to a mere rudiment, symptoms of diabetes do not occur. It is well known that if a portion of the pancreas be left—about one-quarter or rather more—no glycosuria appears. In the great majority of these cases the animals remain healthy, so that it is clear that a portion only of the gland can prevent the diabetic symptoms. Nor need the portion of gland that is left remain in its ordinary situation. A fragment of the gland either from the same or from another animal may, in fact, be grafted elsewhere into the peritoneal cavity or under the skin. Provided the grafting be successful, and the portion of the gland employed be of sufficient size,

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removal of the pancreas is now no longer followed by the usual symptoms. The animal may remain, in fact, in perfect health. If, however, at any subsequent time the grafted portion of pancreas is removed, diabetes supervenes, and the animal dies within a short time, as after a primary removal. It has been shown that the grafting of a portion of pancreas, the secreting part of which had been destroyed by injection of paraffin along the ducts, is also efficacious in preventing the advent of diabetes after removal of the pancreas. It must therefore be assumed that the material, whatever it may be, which is furnished by the pancreas to the blood, and which prevents excessive formation of sugar in the blood and in the urine, must be formed by some other constituents of the gland than the secreting-cells; for there is every reason to believe that these cells are eventually completely destroyed after the ducts have been blocked in the manner described.

It is a question whether the gland which has been thus caused to atrophy still shows the interstitial vascular epithelium-like tissue referred to; but it is extremely probable, in fact almost certain, that this tissue does not participate in the atrophy of the secreting part of the gland, and it seems, therefore, fair to assume that the pancreas mainly owes its function as an internally secreting organ, at least so far as regards the prevention of diabetes, to this tissue, which is apparently peculiar to it among secreting-glands. Various theories have been put forward to account for the effect upon carbohydrate-metabolism of removing the pancreas. It is, however, still entirely unknown how the pancreas does actually act. The effects of grafting just described entirely negative the view that the result is due to interference with the ganglia and sympathetic nerves at the back of the abdomen, a supposition that was at one time brought forward to explain the diabetes resulting from removal. It has been stated by Valli that in dogs which have been rendered diabetic by removal of the pancreas injection of pancreatic emulsion into the blood causes a disappearance of the diabetic symptoms, and many instances have been recorded of diabetes in man which, it is stated, have been benefited by the exhibition by the mouth of raw pancreas. With regard, however, to these statements, it may be remarked that the danger of injecting emulsion of raw pancreas into the blood would be great, on account of the tendency that extracts of gland-cells have to produce intravascular clotting; and, so far as the treatment by feeding with raw pancreas goes, it has been found that in dogs with pancreatic diabetes the excretion of sugar is not decreased, but increased, by giving raw pancreas with the food, even although this be of an entirely proteid nature. The only fact that appears certain in connection with the manner in which the pancreas prevents excessive production of sugar within the body is that this effect must be produced by the formation of some material secreted internally by the gland, and probably by the interstitial vascular islets, and that this internally secreted material profoundly modifies the carbohydrate-metabolism of the tissues. That it does so by influencing hypothetic "sugar-centers" in the bulb, as has been conjectured, is for various reasons improbable.

The next internal secretion for consideration is that of the thyroid gland. The process of study is in one sense simpler in this case, as there is no external secretion. That the thyroid gland is a secreting-gland no one who studies its structure and its mode of development can well doubt; except that it is unprovided in the adult state with a duct, it has all the features of structure of secreting-glands. It is formed of alveoli which are lined by epithelial cells, and these cells have been observed to exhibit changes after treatment with pilocarpin in no way dissimilar to those changes that have been noticed under like circumstances in the cells of true secreting-glands. Further, we can observe the secreted material within the vesicles of the thyroid, in the form of the substance known as "colloid."

The gland is extremely vascular and very richly provided with nerves, and both bloodvessels and nerves come into very close relationship with the secreting-epithelium. The glandular structure of the thyroid is more obvious in young than in old animals, and as age advances the organ undergoes a gradual process of degeneration, so that in advanced age its normal glandular structure can only with difficulty be recognized. As long ago as 1856 Schiff showed that extirpation of the thyroid in dogs is invariably followed by a fatal result. This observation, important as it now seems, fell for many years into oblivion, and it was not until clinical observations had again pointed to the importance of the gland that Schiff's experiments were remembered. These observations may be said to have commenced with the discovery of the disease known as myxedema by Gull in 1874, although the connection of that disease with affections of the thyroid was first recognized by Ord in 1878—an observation that has since been abundantly confirmed. In 1882 J. and A. Reverdin described the symptoms following upon complete removal of the thyroid body for goiter, and they recognized these symptoms as identical with those of the disease that had been described under the name of myxedema; they accordingly termed the collection of symptoms "operative myxedema." The results of the Reverdins were speedily followed by those of Kocher, who described, in a large number of cases, similar symptoms as following entire removal of the thyroid in man. Kocher pointed out that the effects are most marked in young subjects, and that they may not occur at all or be little manifest as age advances. These observations led to a renewal of his former experiments by Schiff, who, in 1884, published the results of sixty thyroidectomies upon dogs, in all of which the result was speedily fatal, the operation being quickly followed by the supervention of symptoms—tremors, spasms, and convulsions—which seemed to point to a serious disarrangement in the nutrition of the central nervous system. Schiff also discovered the fact that symptoms are prevented by a previous graft of a portion of the gland beneath the skin or into the peritoneal cavity.

The subject now became one of general interest and was taken up actively by many experimenters. In England Horsley, by employing monkeys—which survive the operation, as a rule, considerably longer than dogs—discovered that the myxedematous condition which is so characteristic of the removal of the thyroid in man is also produced in animals. It was further found by Allard and by Ewald that no results are obtainable by thyroidectomy in birds, and most observers state that the same is the case with rodents and herbivora generally. The absence of the result in birds has never yet

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been satisfactorily explained; but various attempts have been made to explain the frequent absence of result in herbivora. It may be either that a portion of the gland has been left behind, or that there existed in the particular cases in question accessory thyroids and parathyroids separated from the main body, and not removed in the operation. This is the explanation given by Gley of the negative results that usually attend thyroidectomy in rabbits. Gley states that if in these animals care be taken to remove the accessory structures as well, the usual symptoms supervene. Whether this is a sufficient explanation of the lack of result obtained by other observers remains yet to be proved.

The symptoms that follow thyroidectomy are of two classes—nervous and metabolic, although we are not able to say that the nervous symptoms are not produced by metabolic changes in the tissues of the nervous system; nor is it certain that the metabolic changes in the tissues are not consequent on alterations in the nervous system. The most characteristic nervous symptoms are those that have been already mentioned—muscular tremors, passing gradually into spasms, and finally into convulsive attacks. These cease on section of the nerves passing to the muscles. They are, therefore, of central origin; indeed it has been shown that the excitability of the cortex of the brain, and even of the lower centers, is materially modified in animals that have suffered thyroidectomy. The metabolic changes that occur are most obvious in the connective tissues, and especially in the integument. These tissues become edematous, but the edema is not of the ordinary character. The fluid contains a superabundance of mucin; the integument swells, but at the same time the surface becomes dry, and there is a tendency to the shedding of hairs and of the superficial epithelium. This mucinous change is followed, if the animal remains alive for a sufficient time, by atrophic changes.[1] The nervous affection that primarily results is usually accompanied by slight fever. Later on, this passes off and the temperature becomes reduced, even to some degrees below the normal. These effects of thyroidectomy can be entirely prevented by thyroid grafts, and can be temporarily prevented either by injection of thyroid juice under the skin or even by taking thyroid juice or raw thyroid by the mouth. Dr. G. R. Murray has described the case of one monkey in which, in consequence of the removal of the thyroid, all the symptoms of myxedema had appeared, which was completely cured by repeated subcutaneous doses of thyroid juice. He does not, however, state how long the animal was kept under observation after treatment, and whether the cure was permanent. It is, indeed, scarcely probable that the subcutaneous injection or the taking by the mouth of thyroid juice would be followed by more than a temporary removal of the symptoms. The effects of grafts, however, are to all intents and purposes permanent, and it has been found, as in the case of the pancreas, that removal of the graft which has maintained the health of the animal after extirpation of its own thyroid is speedily followed—as with primary removal of the organ—by the usual symptoms of thyroidectomy.

Various theories have been advanced to account for the effects of removal of the gland. H. Munk holds, or until lately held, that the effects of removal are entirely due to interference with adjoining nervous structures in the neck. But this, as in the similar theory propounded to account for the effects of extirpation of the pancreas, is absolutely negatived by the results of thyroid-grafting. Besides this theory, which must at once be dismissed, there are two others which may be regarded as disputing the ground between them. Of these the one may be called the theory of "autointoxication," and the other that of "internal secretion." The autointoxication-theory assumes that there is a certain toxic substance which is constantly tending to accumulate in the blood, and which it is the duty of the thyroid gland to render innocuous and to remove. According to this, the function of the thyroid would be primarily excretory. This view is supposed to be supported by the statement that in animals which are dying after removal of the thyroid the blood is toxic for other animals, and especially for those that have already had the thyroid removed, although this operation may have been performed only a short time previously, and before the symptoms of thyroidectomy have had time to develop. It is not stated what the probable nature of this substance is, or by what tissues it may be formed. The "internal-secretion" theory would explain the phenomena of extirpation as due to the absence of a secretion which is formed within the thyroid, and which is passed into the blood, possibly through the medium of the lymphatics: a secretion which is necessary for certain of the metabolic processes within the body, and especially for those connected with the nutrition of the central nervous system and of the connective tissues. In the first place, beneficial and not toxic effects follow the exhibition of thyroid juice both in cases of thyroidectomy in animals and in myexedema and other affections in man. Secondly, extract of thyroid gland, whether prepared with water or glycerol and whether previously boiled or not, produces a distinct action upon the blood-vessels, so that the blood-pressure markedly falls, although the beats of the heart remain at about the same rate and of the same strength. This lowering of the blood-pressure without influencing the action of the heart can only be produced in one way, namely, by increasing the caliber of the arteries. Before this effect upon the blood-pressure was discovered it had been shown that the exhibition of thyroid juice or other preparations of thyroid in the human subject has a tendency to increase the caliber of the radial artery. It would seem, therefore, that the juice of the thyroid and extracts which are obtained from the gland have a distinct action upon the vascular system. Lorrain Smith found that in animals that have been deprived of the thyroid body the reaction to changes of temperature was abnormally rapid. When normal animals are exposed to a cold atmosphere the production of carbonic acid becomes increased consistently with the increased oxidation that is necessary to cause an increased production of heat, but this increase of carbonic acid does not take place immediately, but only comes on after a certain period of time, the temperature of the body being

[1] Semon has enunciated a theory to the effect that removal of the thyroid produces an interference with the full chemic development of the constituents of the connective tissues, so that these tend to take on an embryonic character, and it is well known that excess of mucin is characteristic of embryonic connective tissue.

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in the meantime maintained normal by those physical changes which occur in the circulation, and which allow the quantity of blood brought to the skin, and the amount of heat thereby lost from the general surface of the body, to be varied. It is precisely these vasomotor changes that appear to be lacking after removal of the thyroid; for the production of carbonic acid becomes almost immediately increased by exposing thyroidectomied animals to a low temperature. That the thyroid gland yields an internal secretion which effects a useful purpose within the body appears to result conclusively from these facts, and the effects which follow thyroidectomy are probably due to the loss of that secretion. Whether the gland also possesses the function of destroying toxic products of metabolism that would otherwise tend to accumulate in the bood is a point that requires the production of more conclusive evidence before it can be regarded as established.

The next organ the internal secretion of which may be considered is the pituitary body. It is well known that the anterior lobe of the pituitary body is a structure that may in general terms be described as glandular, and although not in all respects resembling the thyroid there are nevertheless certain points both in connection with its mode of development and in the structure of the fully formed organ that might lead to the supposition that there is something functionally common to the two organs. So far as destruction of the pituitary body is concerned, experiments have given interesting results. The organ has been removed successfully in a number of cases in cats and in dogs. In all instances of complete removal death results, usually within a fortnight of the operation. The symptoms are (1) a diminution of the body-temperature, (2) anorexia and lassitude, (3) muscular twitchings and tremors, developing later into spasms, (4) dyspnea. Many of the symptoms show abatement after injection of pituitary extract. Vassale and Sacchi conclude that the pituitary must furnish an internal secretion which is useful in maintaining the nutrition of the nervous and muscular systems. Some of these symptoms, especially the muscular twitchings, are similar to those seen on removal of the thyroid. Moreover, it has been stated that after thyroidectomy the pituitary body becomes enlarged; and Rogowitsch has supposed that the fact that in rabbits thyroidectomy commonly fails to produce the usual results is due to the pituitary taking on a vicarious action, the pituitary being larger in proportion in the rabbit than in most animals.

Similar statements with regard to its enlargement have been made in cases of myxedema in which the pituitary has been examined. But, on the other hand, Schönemann, who examined the pituitary in a large number of cases of goiter, got no distinct evidence of its enlargement in that disease nor of any other marked change. And whereas enlargement and degeneration of the thyroid are accompanied by cretinism and myxedema, there appears to be a close connection between enlargement and degeneration of the pituitary body and an entirely different disease first described by Marie, namely, akromegaly, the most obvious symptoms of which are hypertrophy of the bones of the extremities and of the face, with some hypertrophy of the skin and mucous membranes, but without mucinoid degeneration. Moreover, the theory that the thyroid and pituitary may act vicariously appears to be entirely negatived by the physiologic effects produced by extract of the last-named gland. Tracings of the blood-pressure and heart-beats show that, whereas thyroid extract produces no obvious effect upon the contractions of the heart, decoction of the pituitary body causes great augmentation in the force of the heart's beat without, however, any accompanying acceleration of the rate. Further, the effect upon the arteries is precisely the reverse of that which is obtained by extract of thyroid. The blood-pressure rapidly rises, and that this rise is not due simply to augmentation of the heart's beats, but that it is also due to contraction of the arterioles, is sufficiently shown by the fact that if salt-solution containing pituitary extract be passed through the bloodvessels of a frog, the entire nervous system of which has been destroyed, the vessels markedly contract. This experiment conclusively shows that the effect upon the arteries is unquestionably a direct one, and in all probability this is the case also with the heart.

It may be fairly supposed, then, that the pituitary body also furnishes to the blood an internal secretion, and it would appear that this internal secretion tends to increase the contraction of the heart and arteries and to influence the nutrition of some of the tissues.

Lastly, the internal secretion of the suprarenal bodies may be considered. The immense importance of these glands in nutrition was indicated by Addison, who, in 1855, pointed out that the symptoms of the disease now known by his name are associated with pathologic alterations of the suprarenal capsules. This observation was tested experimentally by Brown-Séquard, who found (1856) that removal of the suprarenal bodies was rapidly and unfailingly fatal in all animals. The symptoms following the removal are practically those of Addison's disease, although much more acute. There are extreme muscular weakness and great loss of tone of the vascular system, with ultimately nervous symptoms, loss of appetite, and other signs of general prostration. But the pigmentation that usually accompanies disease of those organs was not noticed by Brown-Séquard, and he inferred that this absence of pigmentation was probably due to the fact that a fatal result appears so rapidly after the complete removal of the capsules in animals that time is not afforded for the development of this symptom. This conjecture appears to have been confirmed by an experiment of F. and S. Marino-Zucco, who state that by inoculating the suprarenals of rabbits with pseudo-tubercle bacillus they have succeeded in obtaining not only the slow development of the ordinary symptoms of suprarenal removal, but also an augmentation in the pigmentation of the skin and hair. The experiment, however, requires confirmation.

It is needless to state that Brown-Séquard's results, following as they did upon Addison's observations, attracted much attention, and numerous investigators set to work to verify them. But many of these failed to confirm the results that were obtained by Brown-Séquard, probably by reason of the removal being incomplete or of the existence of accessory capsules; and after a few months of controversy the subject gradually dropped, and became for a long time almost forgotten. The interest in this subject has been, however, recently revived, and the experiments of Brown-Séquard have been repeated by various observers, including Brown-Séquard himself, Abelous and Langlois, Tizzoni, and many others.

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Dr. Schäfer has himself made several experiments of the same kind on various animals (monkeys, dogs, cats, and guinea-pigs). All these observations have tended to confirm the original statements of Brown-Séquard. They show that animals deprived of their suprarenal capsules die rapidly, usually in the course of two or three days, with the symptoms noted, and the further fact is mentioned by Abelous and Langlois, and this is also confirmatory of a statement of Brown-Séquard, that the blood of animals dying in consequence of the removal of the suprarenal capsules is toxic for other animals which have recently been deprived of their capsules, although it causes no toxic results in normal animals.[1]

The symptoms caused by this blood are said by Abelous and Langlois to be those of curare-poisoning—paralysis, that is to say, of the intramuscular nerve-endings; and as the most marked phenomenon resulting from removal of the capsules is extreme muscular weakness, it has been concluded by them that after removal of these glands a certain toxic product of muscular metabolism accumulates in the blood, and that the function of the glands is to remove or destroy this toxic principle.

This is the "autointoxication"-theory of the suprarenal capsules, and is similar to that which has been applied to the thyroid body. Like the other autointoxication-theories it is chiefly founded upon the fact that the blood of animals which are moribund in consequence of the particular extirpation is toxic, especially for other animals that have been submitted to the operation. But is it not probable that the blood of an animal dying slowly as the result of any disease would be toxic to some extent, and that the toxic principles would more powerfully affect animals whose resisting power has been lessened by a recent severe operation? However this may be, whether the suprarenal capsules do or do not destroy a toxic principle which is formed elsewhere, and which would otherwise accumulate in the blood, they unquestionably produce a material that has properties entirely different from those stated to be possessed by the blood of animals deprived of their capsules. This material, which is probably the basis of the internal secretion of the glands, has most active physiologic properties, and to these attention will next be directed.

Experiments upon normal animals with extracts of suprarenal have been performed by a number of observers, but by all in a very incomplete manner. For the most part they have been satisfied to inject subcutaneously extracts made with water and other menstrua, and to observe the symptoms, if any, which result. As a matter of fact, in some animals that are so treated there are no obvious symptoms. The guinea-pig will stand a large subcutaneous dose of suprarenal extract without showing any symptoms at all, or with, perhaps, only a slight acceleration and increase of the force of the pulse. The same appears to be the case with the cat and the dog, unless a very large dose be injected. Rabbits, on the other hand, are extremely susceptible to the influence of suprarenal extracts. If a large dose be given, the animal may succumb within half an hour. If, on the other hand, the dose be only moderate in quantity, it may not show any symptoms at all for some hours, and then it may suddenly succumb. This primary absence of symptoms has been also noted by Foà and Pellacani in dogs, who state that in many of the animals which they experimented upon in this way there were no symptoms at all apparent upon the day upon which the injection was given, but that the next morning the animal was usually found dead.

The cause of death, it may be added, in this case is not by any means clear. Foà and Pellacani have supposed that it may be due to paralysis of the respiratory center, but the slight effect that intravenous injection of suprarenal extract produces upon this center does not lend support to this conjecture.

The physiologic effects of intravenous injection of suprarenal extract are far more striking. Experiments by Dr. George Oliver and Dr. Schäfer, performed during the last two years, show conclusively that the medulla of the suprarenal capsule contains a dialyzable organic principle, soluble in water, and not destroyed by boiling for a short time, which exerts a powerful physiologic action upon the muscular system in general, but especially upon the skeletal muscles, the muscular walls of the bloodvessels, and the muscular wall of the heart. A certain amount of action is also manifested upon some of the nerve-centers in the bulb, especially the cardio-inhibitory center, and to a small extent upon the respiratory center.

The effect upon the skeletal muscles is well shown in the frog, and can also be seen in mammals. The contraction of the muscle in response to a single excitation of its nerve is as ready as in the normal animal; but it is greatly prolonged, so that the result is comparable to that produced by a small dose of veratrin, which has the effect of enormously increasing the contraction resulting from a single stimulation of the muscle or its nerves. It is in no way comparable to a curare-effect, for the muscles remain as excitable through their nerves as before. It is, therefore, an effect entirely different from the so-called autointoxication-paralysis that is stated to result after removal of the suprarenal capsules in animals, and the material that is extracted by water, therefore, from the suprarenal capsules is certainly not the same material that is said to accumulate in the blood after the removal of those organs.

The action upon the circulatory system may be divided into the action upon the heart and the action upon the arterial system. Upon the heart the effect differs according as the vagi are cut or uncut. When the vagi are uncut, and the heart is therefore still in connection with the cardio-inhibitory center in the medulla oblongata, the action of suprarenal extract is to slow, and even to stop entirely, the contraction of the auricle. Under these circumstances the ventricle continues beating with an independent slow rhythm. The result is to cause the pulse to be very slow. On the other hand, when the vagi are cut or their cardiac ends paralyzed by

[1] It is stated by Brown-Séquard that injection of extract of suprarenal under the skin of animals, the suprarenal capsules of which have been removed, has a partial success in prolonging life. Dr. Schäfer knows of no cases in which animals in this condition have been kept alive for any length of time, either by injection in this way or by the taking of suprarenal by the mouth. Nor is he aware of any successful attempts that have as yet been made to effect a graft of the organ into another place, although there can be little doubt that if such a graft were to become successfully rooted, the result would be similar to that which is got with grafts of pancreas and of thyroid. It appears, moreover, to be true that some cases of Addison's disease are distinctly benefited by extract of suprarenal capsule, taken by the mouth.

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atropin, the effect upon the heart is precisely the reverse. The strength and frequency of the auricular contractions are markedly increased, and those of the ventricle are correspondingly augmented. This naturally has the effect of sending a vastly greater amount of blood into the arteries, which by itself would alone produce a great rise in the arterial pressure. The direct action upon the arteries is, however, quite as marked as that upon the heart. If the blood-pressure be taken in a dog in the usual way by connecting a mercurial manometer with the femoral artery, and if a minute dose of suprarenal extract be now injected into a vein, it is found that even with the vagi uncut and the heart therefore slowed by the action of the extract the blood-pressure rises considerably. But with the vagi cut or paralyzed by atropin the rise can only be characterized as enormous.

The contraction of the arteries is further exemplified by the fact that if an organ such as a limb or the kidney or the spleen be enclosed within a plethysmograph, or oncometer, the instrument indicates an enormous diminution in volume of the organ, which can only be accounted for by a contraction of its arterioles. This contraction is produced by the direct action of the drug upon the muscular tissue of the smaller arteries, and not indirectly through the vasomotor center, for it obtains in the mammal equally well with the spinal cord cut or the bulb destroyed, or even in the case of the arm after the brachial plexus has been severed. In the frog it is produced also with the brain and spinal cord completely destroyed and salt-solution containing suprarenal extract allowed to flow through the arteries.

Under these circumstances the flow of fluid, which without the suprarenal extract may have been comparatively rapid, becomes almost completely stopped, and this can only be due to the direct action of the extractive substance upon the muscular tissue of the smaller arteries. After the vagi have been cut the blood-pressure may rise to four or five times its original height; no other known agent will produce such an enormous increase of pressure except direct stimulation of the vasomotor center. It is not the case, however, that this center is stimulated by the drug, for the action is essentially a peripheral one.

The effect passes off in the course of a few minutes. After a dose, no matter whether small or large, has been injected into a vein, and has produced the results noted, the bloodvessels slowly resume their ordinary caliber, the augmentation and increased frequency of the heart's beats become gradually lessened, and the blood-pressure recovers its normal condition. Whilst the pressure is raised under the action of suprarenal extract, there is apparently no possibility of inhibiting the arterial contraction; even the strongest stimulation of the depressor nerve, which under ordinary circumstances produces through the vasomotor center a marked dilatation of the arterioles, is without result during the activity of this extract. The question naturally arises, How is it that the effect so soon disappears? In what manner is the active principle eliminated? It is not eliminated by the kidneys, for the effect passes off just as quickly, even although the renal arteries are clamped. It is not eliminated by the suprarenals themselves, for the same fact holds good for the suprarenals. It passes off almost equally quickly if the aorta and vena cava are tied in the upper part of the abdomen, so that there is no circulation of blood whatever in the abdominal organs. It is not oxidized or otherwise destroyed by the blood, for it retains its full potency even after it has been twenty-four hours in contact with that fluid. The most probable explanation of the disappearance of the effect seems to be that the active principle becomes packed away, and eventually rendered innocuous in certain organs. That the muscles take most part in this storage is probable from the fact that the physiologic effects upon the skeletal muscles are manifested for a long time after the effects upon the heart and arteries have disappeared.

One of the most interesting and important facts regarding the material that is yielded by the suprarenals is the minuteness of the dose that is necessary to produce these results. As little as 0.0055 g. of dried suprarenal is sufficient to obtain a maximal effect upon the heart and arteries in a dog weighing 10 kilograms. For each kilogram of body-weight, therefore, all that is necessary to produce a maximal effect is 0.00055 g., or little more than half a milligram.

It has been shown that the active principle is contained only in the medulla of the gland, not in the cortex, and the medulla in all probability does not form more than one-fourth of the capsule by weight. Of the dried medulla certainly not less than nine-tenths is composed of proteid and other material which is not dialyzable, and which otherwise does not conform to the chemic properties that have been ascertained to belong to the active substance of the gland. So that, if these facts are taken into consideration, it is found that in order to produce a maximal effect a dose of not more than fourteen-millionths of a gram per kilogram of body-weight is all that is necessary. It is certainly true to say that one-fourteenth of this dose will produce some effect, although not perhaps a very large one. The astounding conclusion is thus arrived at that the active principle of the suprarenal capsules, taken in the proportion of not more than one-millionth part of a gram per kilogram of body-weight, which would be equivalent to $\frac{1}{15000}$ g., or less than $\frac{1}{800}$ grain, for an adult man, is still sufficient to produce distinct physiologic results upon the heart and arteries.

It may be considered probable that the suprarenal capsules are continually secreting into the blood this active material which, although present in that fluid in only minute quantities, may yet be sufficient to produce an effect which is beneficial for the performance of the functions of muscular tissue, and especially the muscular tissues of the vascular system. It has, in fact, been stated that the blood of the suprarenal vein contains a sufficient amount of the active principle of suprarenal extract to produce marked physiologic effects. Dr. Schäfer has made three very careful experiments in an endeavor to confirm this statement, but he has not been able to find that the blood of the suprarenal vein does actually contain a sufficient amount of this material to produce, even in doses of as much as 10 c.cm., any more result than venous blood generally. But whether it can be shown, experimentally or not, there is very little doubt of the fact that the materials formed pass somehow or other into the blood; and, when the results of suprarenal injection are compared with the converse effects obtained from the removal of suprarenals and from disease of those organs, no other conclusion can

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be reached than that we have here a notable instance of internal secretion.

The general results to which we are led from a consideration of these facts point very strongly in favor of the notion that internal secretions are yielded both by the ductless glands and by what are usually known as the true secreting-glands, and that such internal secretions may be of no less importance than the better recognized functions of the external secreting-glands. That failure of one or other of these internal secretions may occasionally have to be reckoned with by the physician there can be no doubt, while on the other hand the therapeutist will be able to avail himself of the active principles which the internally secreting organs afford, and in certain cases to use their extracts in place of the hitherto more commonly employed vegetable medicaments.

That the subject has a vast future there can be little hesitation in predicting, for, in spite of the advances that have been made in elucidating it during the last few years, very many points still remain obscure. Nevertheless, the way the physiologist has attempted to show may now safely be followed by the practitioner, and the results of these physiologic experiments, as well as clinical and pathologic observations in the same direction which are steadily accumulating, cannot fail to throw light upon and to assist in the diagnosis and treatment of many ill-understood symptoms of disease.

## NEWS ITEMS.

*The American Dermatological Association* will hold its nineteenth annual meeting at the Windsor Hotel, Montreal, Canada, September 17, 18, and 19, 1895. The following program has been arranged: Address by the President, Dr. S. Sherwell. Angiokeratoma of the Scrotum; Raynaud's Disease of the Ears; Report of cases, by Dr. J. A. Fordyce. Two Cases of Hydroa Vacciniforme, by Dr. J. E. Graham. Two Cases of Bromid Eruption, by Dr. G. T. Jackson. The Value and Limits of Usefulness of Electrolysis in Dermatology, general discussion. Dermatological Notes, by Dr. W. A. Hardaway. The Epitrichial Layer of the Epidermis and its Relationship to Ichthyosis Congenita, by Dr. J. T. Bowen. Remarkable Drug-eruption, by Dr. F. J. Shepherd. A Hitherto Undescribed Sequel of Non-parasitic Sycosis, by Dr. J. A. Cantrell and Dr. J. F. Schamberg. The Infected Scratch and Its Relations to Impetigo and Ecthyma, by Dr. H. G. Klotz. A Contribution to the Study of Mycetoma, by Dr. J. N. Hyde. Unusual Papulo-pustular and Fungating Bromid of Potash Eruption in a Baby, by Dr. G. T. Elliot. An Etiological Puzzle, by Dr. J. C. White. Studies on Some Dermatological Subjects, by Dr. A. R. Robinson. A Unique Case of Agminate Folliculitis of Parasitic Origin, by Dr. M. B. Hartzell. Note on Antiparasitic Treatment of Eczema, by Dr. J. Zeisler. The Treatment of Erysipelas Based Upon a Second Series of Fifty Cases, by Dr. C. W. Allen. Notes on Drug-eruptions, by Dr. J. A. Fordyce. A Further Study of Alopecia Præmatura and Its Most Frequent Cause, by Dr. G. T. Elliot. The Prevalence of Germ-dermatoses, by Dr. J. C. White. Symbiosis of Cutaneous Eruptions, by Dr. J. Zeisler. Sleep in Its Relation to Diseases of the Skin, by Dr. L. D. Bulkley. Exhibition of Photographs of Unusual Cases, by Dr. H. W. Stelwagon. (Title to be announced), by Dr. S. Lustgarten. Urticaria Pigmentosa. Case twenty years under observation, by Dr. P. A. Morrow. Note on the Elastic Circular Bandage, by Dr. G. H. Fox.

*The Mississippi Valley Medical Association* will hold its twenty-first annual meeting at Strassburg's Academy, Detroit, Michigan, September 3, 4, 5, and 6, 1895. In addition to the elaborate scientific program that has been prepared, generous provision has been made for social entertainment, and the meeting promises to be a most successful one. The usual reductions in railway-fares have been secured and ample hotel-accommodations provided for.

*The Medical Examining Board of Virginia* will begin its examination of candidates for licence to practise in Virginia, in Wytheville, promptly at 9 A.M., Tuesday, September 3, 1895. The Board itself will meet at 8 P.M., Monday, September 2d, for business. All letters with reference to this Board and the examinations should be addressed to the Secretary of the Board, Dr. Benjamin Harrison, Franklin and Seventh Streets, Richmond, Va.

*Dr. Kurt Schimmelbusch*, a rising young surgeon of Berlin, died August 2d, at the age of thirty-six years.

*Dr. James W. H. Walker* died August 20th, aged twenty-four years, while bathing at Wildwood Beach.

*For the James E. Reeves Fund* we have received from Fred Volz $1; Dr. N. W. Leighton, $2.

### BOOKS AND PAMPHLETS RECEIVED.

Abstract from the Second Annual Report of the Dairy and Food Commissioner of Pennsylvania. Report of Analytic Work. By Henry Leffmann, A.M., M.D., Chemist to Dairy and Food Commissioner of Pennsylvania.

Peculiar Perversion of the Color-perception. By Homer E. Smith, M.D. Reprinted from the Medical Record, 1895.

Angio-sarcoma of the Ovary. By Thomas S. Cullen, M.B. Reprinted from the Johns Hopkins Hospital Bulletin, 1894.

Tumor Developed from Aberrant Adrenal in the Kidney. By Thomas S. Cullen, M.B. Reprinted from the Johns Hopkins Hospital Bulletin, 1895.

Is the Physiognomy of the Fundus Oculi in Epilepsy Characteristic? By Wendell Reber, M.D. Pamphlet. Pottsville, Pa.

Vegetable Nucleo-toxin in the Treatment of Cancer. By J. E. Chambers, M.D. Reprinted from the St. Louis Courier of Medicine, 1895.

Two Cases of Mastoid Abscess following Acute Middle-ear Inflammation; Operation; Recovery. By George C. Stout, M.D. Reprinted from the Philadelphia Polyclinic, 1895.

A New Method of Examination and Treatment of Diseases of the Rectum and Sigmoid Flexure. By Howard A. Kelly, M.D. Reprinted from the Annals of Surgery, 1895.

The Etiology, Pathology, and Treatment of Intestinal Fistula and Artificial Anus. By N. Senn, M.D., Ph.D., LL.D. Reprinted from the American Journal of Obstetrics, 1894.

Endometritis: Its Clinical Importance and Treatment by Curetting. By T. Griswold Comstock, Ph.D., M.D. Read before the St. Louis Society of Homeopathic Physicians and Surgeons, November 17, 1894.

Exfoliation of Cochlea, Vestibule, and Semicircular Canals. By M. A. Goldstein, M.D. Reprinted from the Annals of Ophthalmology and Otology, 1895.

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# THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

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## ORIGINAL ARTICLES.

### STUDIES ON THE LESIONS PRODUCED BY THE ACTION OF CERTAIN POISONS ON THE NERVE-CELL.

[From the Anatomical Laboratory of the Johns Hopkins University.]

***Part II.—Experimental Lesions Produced by the Action of Dog's Serum on the Cortical Nerve-cell of the Rabbit's Brain.***

(PRELIMINARY PAPER.)

BY HENRY J. BERKLEY, M.D.,
OF BALTIMORE, MD.

THE interest that has recently been taken in the action of a number of soluble bacterial poisons produced in the course of certain infectious diseases, and capable of inducing various epiphenomena from their effect upon the nervous system, is well attested by numerous articles from the pens of authors in the four principal languages of the civilized world. The endeavor of the majority of these workers has been to discover in the corpus of the nerve-cell certain definite changes by means of selective stains, rather than to take up the several members of the neuron and consider them separately, and, indeed, this has only recently become possible.

While it is possibly stretching a point to consider blood-serum in the light of a bacterial poison, its action upon the tissues is not dissimilar, as may be seen from the results of the examination of other organs than the cerebrum from rabbits dying of chronic serum-poisoning, and it is highly probable that we shall eventually find in every person dying after the long-continued action of soluble poisons, whether bacterial or chemic, a class of lesions of the neuron similar to those described in this communication.

In the pathologic material from the autopsy-table we are sadly hampered by a multitude of post-mortem and other changes, which, though of great moment, are imperfectly known. Therefore, experimental material, under full control from the moment the inoculation is made, through the various stages of the experiment down to fixation and the staining and mounting of the sections, is of the utmost value in establishing a precedent for a similar class of lesions in the human being, especially as there are no wide anatomic differences between the nerve-cell of the animals used and those of man.

The material for the purposes of the study is at the present time small in amount, but as it is for the moment impossible to add to it, and as the lesions in all the sections have been very constant, and of a well-defined though new type, I have concluded to utilize what I have on hand, and add to the results at a later date. I shall, therefore, confine myself to a description of the histologic changes found, without indulging in speculative conclusions, an intention for which apology is hardly needed.

It is to my mind proved by the destructive action of poisons on the nerve-cell of the cortex that it only requires the long-continued action of almost any soluble toxin to cause destructive effects on the neuron, and that these do not call for the presence of a micro-organism. This principle may be more clearly demonstrated in subsequent papers, and it will probably eventually be shown that poisons that are supposed to be limited in their action are probably universal nerve-poisons, and that their continued action results in an extensive degradation of the entire nervous system, if only a sufficient length of time be allowed them.

In the winter of 1893, Dr. Simon Flexner, of the Pathological Laboratory of John Hopkins Hospital, began a series of experiments upon the action upon rabbits of blood-serum obtained from man and the dog. These researches have been continued, although an outline of the pathologic changes found after the inoculations, in connection with a series of other studies, has already been published.[1]

Briefly, Flexner found that injections of serum of 1.5 per cent. of the bodily weight of the animal experimented upon were usually fatal, death occurring either immediately or after the lapse of ten or twelve hours. Quantities equal to 1 per cent. of the bodily weight caused profound disturbances, including hemoglobinuria and albuminuria, less commonly anuria, and in a few instances immediate death. When death followed at once it was usual to find thrombi in the right side of the heart, which now and then extended into the pulmonary artery and its branches. Cases in which the death of the animal was delayed for a time were of especial interest, as they showed well-marked lesions resembling in many ways the changes described in connection with the toxalbumins of diphtheria, ricin, and abrin.

The organs studied were the spleen, liver, kid-

[1] "The Pathologic Changes Caused by Certain So-called Toxalbumins." THE MEDICAL NEWS, Aug, 4, 1894, p. 116.

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neys, and lymph-glands. In the acute cases the spleen showed a tolerably rich fragmentation of nuclei situated especially in the Malpighian bodies; the liver, certain foci of cellular necrosis; while the renal epithelium was degenerated and many casts blocked the kidney-tubules. Very extensive lesions were found in one animal that died on the thirteenth day. The microscopic appearances were those of chronic interstitial processes in the liver and kidney. In the latter organ the tubules were in places atrophied and surrounded by a new growth of connective tissue; in other places the tubules were dilated and their epithelial lining degenerated. In the liver the chronic changes were exceedingly well marked, and were an accurate reproduction of cirrhosis in the human being. Areas of newly formed or forming connective tissue proceeded from the portal spaces and from the capsule; newly formed bile-ducts were numerous, but what was of especial moment was the association with these changes of another process, viz., acute degenerative changes in the liver-substance, which were often distinctly the starting-places of the sclerosis. In the spleen masses of fibrous tissue were found. These changes show that the damage the serum is capable of doing is not limited to the corpuscular elements of the blood, for the tissue-cells also are not indifferent to its action.

From a later series of experiments than those just referred to, Dr. Flexner very kindly placed at my disposal the cerebra of several of the rabbits, in order to enable me to determine if the nerve-cells suffered from the action of the serum in a manner equivalent to those of the viscera mentioned. Unfortunately for our closer knowledge of the cerebral cells, these elements do not show mitotic figures, nuclear fragmentation, and coagulation-necrosis in the same manner as the liver-cells, but with our best stains, whether chemic combinations with the cellular substance or simple dyes, they are eminently stubborn to microscopic analysis; and from the reaction of the protoplasm to the dyes we can demonstrate in cells we perforce know must be diseased only indefinite alterations in the amount of absorption of the dye by the protoplasm, especially of the chromophilic particles, and most uncommonly any definite changes in the nucleus or nucleolus. These difficulties in obtaining accurate results from minor changes in the nerve-cell probably arise from the circumstance that the nerve-cells are completed elements, incapable of regeneration, and only show alterations of a pronouncedly degenerative type.

The material for this study has to this time been the brains of three rabbits from parts of two series of serum experiments, and, so far as the lesions of the cortical cells were determined, they were constant and identical in all the animals, though varying in intensity, seemingly according to the severity of the poisoning, as rabbit No. 2, first series *a*, which died from the result of an injection and not from the long-continued poisoning the others underwent, exhibited vastly larger numbers of normal cells than its companions in the investigation. It will be noticed in the table that this rabbit only lost about two-hundred grams in weight, and, accordingly, was not so greatly emaciated as the others. It is, at present, impossible to determine exactly what part the denutrition of the tissues plays in the production of the lesions of the nerve-cell, but I can hardly doubt that it is very secondary to the direct influence of the poison upon the cell, for in human alcoholics that show no emaciation the same kind of lesions are found, varying somewhat in intensity.

A synopsis of the histories of the rabbits comprising the basis of this study is given in the following table:

SERUM RABBIT SERIES.

| Number | Age. | Weight at beginning of experiment. | Begun inoculations. | Quantity injected. | Frequency of inoculation. | Date of death. | Weight at death. | Clinical cause of death. | Gross anatomic lesions. | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 Series 2, *b*. | Adult. | 1700 g. | Nov. 22 1894 | 6 c.cm. increased to 18 c cm. | Intervals of 2 w'ks. | Apr. 8 1895 | 1200 g. | Exhaustion. | Great emaciation; no visible lesions. | There were no well-marked meningeal changes in any of the rabbits. |
| 2 Series 1, *a*. | Adult. | 1700 g. | Nov. 6 1894 | 6 c.cm. increased to 18 c.cm. | Intervals of 2 w'ks. | May 5 1895 | 1500 g. | Overdose of serum. | Thrombi in heart and brain. | Injections of 12 c.cm. were fatal in control-rabbits. |
| 3 Series 1, *b*. | Adult. | 1700 g. | Nov. 6 1894 | 6 c.cm. increased to 18 c.cm. | Intervals of 2 w'ks. | May 31 1895 | 1300 g. | Exhaustion. | Great emaciation; no gross lesions. | Rabbit No. 2 died suddenly after an injection of serum. |

## METHODS OF PREPARATION AND STAINING.

The methods pursued in the preparation of the cerebral tissues for this investigation were similar to those made use of in Part I,[1] of these studies, namely, fixing the tissues in alcohol and in Müller's fluid, and after treatment with various anilins, hematoxylin, and silver-staining, according to the silver phospho-molybdate formula, as already given.

[1] Part I, "Experimental Lesions Produced by the Action of Absolute Ethyl-Alcohol on the Nerve-cells of the Rabbit's Brain," will appear in the autumn number of Brain.

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The control-preparations were obtained from the cerebra of two young but full-grown rabbits, treated exactly according to the same formulæ for the fixing and staining, kept for the same length of time in the hardening media, and stained exactly by the same procedure as the serum-brains, often running the two together in the same jars.

As mentioned in the first section of these studies, there are upon the dendrons of the nerve-cells of the cortex a minimal number of thickenings or varicosities. The majority of these occur at the forkings of the dendritic branches, and rarely indeed is one to be found in the course of any of the finer branches in the normal brain. In the course of the axis-cylinder there are also knots of somewhat greater frequency, which begin at a variable interval from the cellular body, and continue through the entire intra-cortical course of the axon. Occasional varicosities of the dendron must, therefore, be held to be normal, the same holding good for the axon, although in the latter they are present in greater frequency. Since Coella, Greppin, Andriezen, and a few others have found in human brains, principally those of paralytic dements, an increased number of swellings upon the dendrons, the subject of these varicosities has attracted some little attention. Flatau[1] has quite recently discussed them at some length, and has arrived at the conclusion that they are natural.

It is quite possible to imagine that normal brains have a varying number of varicosities upon their dendrons, but when they increase vastly in size and occupy the whole dendron, they must be held to be abnormal, especially when they present a size that is incompatible with anything in the normal control-preparations; and the entire cell, with the exception of the axon, frequently shows evident signs of the presence of a destructive process. Not only are these abnormal swellings of great frequency on the finer branches and along the stems of the pyramidal nerve-cells, but it may readily be demonstrated that the very varicosities normally present, particularly the enlargements at the branchings of the dendrons, take on this alterative process, and in themselves became tumefied. Furthermore, we have one certain sign of dendritic degeneration in the pyramidal and some other nerve-cells that seems to have entirely escaped the attention, not only of the criticisers of the value of the probable degeneration, but also of its exponents. I refer to the disappearance of the gemmules or lateral buds upon the branches of the dendrites, which takes place whenever the tumefactive process is at all advanced, or even occurs coequally with this.

I have elsewhere written more fully of the gemmule and its significance histologically, and in certain forms of dementia, and it suffices now to give a short anatomic description of one very interesting part of certain of the most important of the nerve-cells, which for some unexplained reason, possibly from defective staining, has hitherto received but little attention. The gemmule, in its most developed state, is found only on the dendrites of two classes of nerve-cells, the pyramidal or psychic cells of the cerebral cortex, and the Purkinje cells of the cerebellar cortex. Histologic differences in the appearance of the gemmules are very apparent in these two varieties of cells. With the pyramidal bodies they present very much the appearance of a thin pin with a rounded head, having its sharpened point stuck into the protoplasmic substance along the edges of the dendrons, both the ascending and basal of the cells. They are arranged with considerable regularity along the thicker protoplasmic branches, and at a rectangle with the stem of the dendrite.

On the finer dendrites the intervals between the gemmules are slightly increased, and while preserving the same form as on the thicker branches they are slightly longer, and have less of the rectangular disposition. On the branches of the Purkinje cell the gemmules are very numerous and much more closely set together than on those of the pyramidal cell, and they give to the neuron a furry appearance. Besides these inherent characteristics, they begin by a broad base, do not increase in size as they extend outward, and terminate not in a rounded knob, but in a flattened ending that is no larger than the proximal portion of the stem. Here and there between the others single ones are found, similar in appearance to those of the cortical cells.

The function of the gemmule probably is to receive nerve-impulses from the endings of the numerous terminal nerve-fibers that seem almost to touch them, and to carry these impressions to the dendrite, and by its medium on to the cell-body. Differences in the function of the gemmule of the pyramidal and Purkinje cell are probable.

### HISTOLOGY OF THE ALCOHOL-HARDENED SERUM-SPECIMENS.

The staining of the sections for this portion of the study was by Nissl's methylene-blue and magenta, and hematoxylin-eosin. The only noticeable difference between the several brains was that in No. 2 the perivascular spaces contained a considerable number of polynuclear leukocytes, while in the other specimens these corpuscular bodies were absent.

The larger and medium-sized arteries have absolutely no sign of alteration in their several coats. The intermediary vessels are not at all prominent; their sheaths are normal; and the perivascular

[1] Archiv für Mikroskop. Anatomine, May, 1895.

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spaces, while distinct, are not dilated, and contain no foci of round-cell aggregations and no hematoidin-débris. The capillaries and veins are normal. The endothelium of the vessels shows no trace of swelling or other abnormality.

The staining of the nerve-elements by the Nissl methods was made as intense as possible, and the decoloration not allowed to proceed quite to the usual point, in order to leave the protoplasmic processes stained to their fullest extent. The nuclei of the nerve-cells do not seem to be shrunken or irregular in contour. Few of them are of other than the mono-nucleolar variety. This nucleolus is smooth, lies toward the center of the nuclear ring, and shows no alteration in its capability for the absorption of the anilin.

Changes in the protoplasm of the corpora of the cells are somewhat indefinite. The protoplasm takes the anilin stain well, but the chromophilic particles are not well defined, and the intervening spaces between them seem to be occupied with more of the fine granules than are present in the control-slides. No stress can be placed on these indefinite changes.

A very few of the pyramidal cells contain vacuoles, but not even as many as three in a section. Seldom is there any appreciable shrinkage in the protoplasmic body ascertainable. The protoplasmic arms of the cells are very finely granular. In some of them small knots are to be seen, the swelling being recognizable from the absorption of a greater quantity of the dye than is present in the portions more distant from and more proximal to the cell-body. In the swelling the fine granules become less distinct than elsewhere.

In the cerebellum there is nothing noticeable in the cells of the granular and molecular layers. A few of the Purkinje cells are vacuolated.

### HISTOLOGY OF THE MÜLLER'S FLUID-HARDENED SPECIMENS.

The staining of these sections was solely by the silver phospho-molybdate method. Between Brains 1 and 3 there were no microscopic differences of moment. Brain No. 2 showed a slighter degree of degenerative changes in the neurons than the others, and was especially interesting from the fact that the degenerated could always be found intermingled with approximately normal cells, affording an opportunity for an accurate comparison between the different elements. This brain was also remarkable for the beautiful staining of the nerve-elements of all the layers, which were exhibited in as perfect a manner as can ever be obtained in silver-preparations, and the sections were not disfigured by the presence of precipitate, even the external margins being free.

The lesions found in all the cerebra were closely allied to those found in the alcoholic brains that formed the basis of the first study. Cells of all layers were involved in the destructive process, the pyramidal of all varieties in the first order, then the deeper-lying elements, finally those of the extreme outer edge of the second layer and the elements of the molecular lamina.

A view of a section under low enlargement shows that the primary processes of many of the pyramidal cells no longer reach into the outer portions of the molecular lamina. Their finer dendritic branches have disappeared, while the thicker ones are filled with a multitude of coarser and finer knots, scattered with some regularity along the line of the stem. On the other hand, the thick intra-capsular portions of the dendrites have not become diseased in a similar manner, but apparently retain their integrity in so far that they are not altered in appearance by coarser changes, and seldom does the body of the cell present aught but its even, rounded contour. The basal processes are often likewise shortened, and show the knotty growths upon them like their ascending fellows.

Not every cell presents a similar degree of alteration, and according to the degree of involvement they may be divided into three classes: Cells in which the process is beginning; those in which it is moderately advanced; those in which the dendrons are very much degenerated. The normal cells in Brains 1 and 3 were comparatively infrequent; in No. 2, on the contrary, more that two-thirds of the stained cells were normal.

As the degenerative process is of similar character among all the classes of cells, we have taken the most prominent type, the pyramidal cells, as the criterion of the whole, as they are very much easier to study than the other, and have a definite size and anatomic characteristics, as well as stain constantly.

### CLASS A, CELLS SLIGHTLY INVOLVED IN THE ALTERATION.

High up in the molecular layer we find upon the finest branches of the dendrons of the pyramidal cells, especially those of the long apical-process variety, a few tumefactions of either rounded or elongated form in the course of the stem. These tumefactions are deeply stained by the silver-salt, are smooth, and have few or no gemmules attached to their sides, or, when these are still present, there are perceptible differences in the tingeing with the silver-salt that indicate an alteration in their structure. Both nearer the cellular body and distally from the swelling, the dendrite appears to be perfectly normal, the staining is good, and the pin-like lateral buds are numerous. In these neurons the

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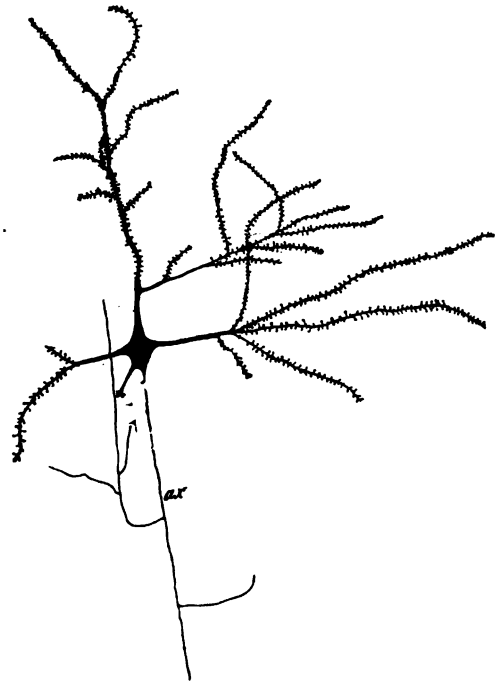
coarser branches and the corpus of the cell are undisturbed by any alteration apparent to the micro-

FIG. 1.




Pyramidal cell from the mid-portion of the second cellular layer of the rabbit's brain, showing commencing tumefactions of the protoplasm of the finest apical dendrites, and denudation of the gemules at the points of swelling. At the uppermost forkings of the ascending dendron a normal enlargement of the protoplasm is seen, which is covered with gemules. Ax., axon.

scopic examination, and, indeed, the slight swellings on the finest twigs would occasion but slight comment were no other cells more deeply involved.

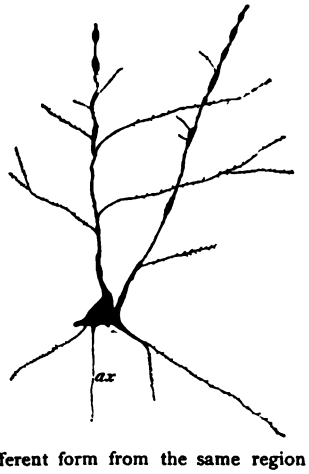
### CLASS B, CELLS MODERATELY INVOLVED BY THE DEGENERATION.

This type is the most numerous of all. The tumefactions before present only on the finest dendritic branches now extend throughout the entire path of the stems of the apical and basal processes, reaching up or down to their intra-capsular portion, and many of the finest branches are no longer stained, and are apparently totally degenerated, having been partially or totally removed. The number of the swelling varies greatly in the different involved cells. Usually the dendrons have a large number of small thickenings along their course, and present a true moniliform appearance. Less commonly there are only a few of larger size, but the result to the nerve-process is the same. These large-sized swellings are peculiarly frequent at the forkings of the branches of the apical dendrons, where there is normally a thickening of the protoplasm. Rarely one meets with dendrons in which the smaller swellings are so numerous that they are coalesced, and only are noticeably different from the normal dendron by the irregularity in their contour and the loss of the lateral buds. In all the varieties there is an absolute loss of the gemmules on the dendritic processes, which eventually proceeds to a complete stripping of the dendron of all its fine rectangular pin-like processes. This denudation of the gemmule varies considerably on the different dendrons according to the number and advancement of the swellings. When the stem has only a few tumefactions the intervening spaces usually retain some of the buds, but when the swellings are numerous or very large they progressively disappear, until in a very large number of instances not only the finest branches are stripped of them, but the thicker portions are equally bare.

Following the swelling and loss of the lateral buds comes a contraction of the protoplasm of the dendritic twigs, especially that portion not involved in the swelling, though these also eventually atrophy. In the spaces between the swellings, as the process advances, the diameter of the branch grows less and less until it is reduced to a mere knotted thread. Then comes a time when there is a breaking up of the continuity of the twig. The finest branches fall off from the thicker stems, and are finally absorbed, the neuron now being reduced to the corpus of the cell, with the stumpy tumefied remains of the thicker dendrons attached to it.

I wish particularly to draw attention to the loss of the finest branches of the dendrites within the

FIG. 2.




A cell of different form from the same region of the cortex, showing an increased number of swellings and greater loss of gemmules.

limits of the molecular layer, a region of the utmost importance in the physiologic economy of the cortex. Here the branches of the dendrons, by means of their gemmules, come into contiguity with the

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terminations of the nerve-fibers and end-apparatus of all descriptions belonging to the several classes of nerve-fibers, tending thitherward from the interior regions of the cortex—fibers from the cord and opposite hemisphere, fibers from the fusiform and other cells of the lowermost layers of cortical cells, collaterals from the pyramidal cells, also to some extent from the intermediary cells. Here all meet in close relation with the terminal branches of the pyramidal, and in the rabbit the bicornuate cells, and the nerve-impressions are carried through the medium of the bulbous tip of the gemmule and its stem to the protoplasm of the branch, and through this to the body of the cell.

It may be readily seen that, according to this arrangement of the fibers, no matter how small the swelling of the dendron and loss of the gemmules may be, there is an instant disruption of the close connections between dendron and nerve end-apparatus, and consequently imperfect carriage of nerve-impulses from neuron to neuron; and should the destruction proceed to any considerable extent, and involve a moderate number of the protoplasmic extensions of the nerve-cells, that a serious disturbance of the mental and motor functions of the cortex will result, ending eventually in partial or complete annulling of all the mental faculties of the animal.

None of the bodies of the cells of Class B shows any noticeable alteration in structural arrangement, the destructive process having apparently to advance to a greater degree than is found with the moderate degeneration of the dendrites.

### CLASS C, CELLS EXTENSIVELY INVOLVED IN THE DEGENERATION.

This class is almost entirely absent from the cortex of Brain No. 2, but in the other cerebra it constitutes a moderate proportion of the diseased cells. especially in Brain No. 3. The dendrons are now shortened to mere stumps; the finer branches have entirely disappeared; the coarser ones are irregular in outline and have large and small swellings upon them, and are much thinned, very often terminating in an enlargement at a short distance from the cell-body, having a thin, pointed projection extending out of it in the direction of the line of the former process. The gemmules have now entirely disappeared, not a single one being visible on the portions of the dendrites that remain. The cell-body presents under these conditions two entirely different appearances, even when the dendrites are disintegrated equally. In the first one the cell-body, where the processes have almost disappeared, retains its smooth and rounded form; seldom, indeed, is it roughened, and to all appearances the condition is one of health. In the other class the protoplasmic extensions have the same general aspect, but now the corpus is distinctly involved in the destructive metamorphosis. The edges of the cell are roughened and irregularly eroded; deep

FIG. 3. FIG. 4. FIG. 5.

Fig. 3.—A cell from the same region, showing atrophy and destruction of all the dendrons. The gemmules are only present at one point on the ascending process, and the cell-body is considerably eroded.

Fig. 4.—Small pyramidal cell, showing complete loss of the protoplasmic branches and gemmules, with roughening and shrinkage of the cell-body.

Fig. 5.—A long pyramidal cell from the lowermost portion of the second cellular layer, showing the swellings and shortening of the ascending process, loss of the gemmules, and great erosion of the cell-body.

Zeiss, ocular 4, objective E.

FIG. 6.

Micro-photograph of a stout ascending process of a large normal pyramidal cell, showing the arrangement of the lateral buds. A number of finer dendrons are included in the photograph. The fine granular lines indicate dendrons and vessels that were not fully in the focus of the camera.

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excavations proceed from the periphery toward the central regions of the body; and, in exceptional and very advanced instances, nothing but a mass of detritus, blackened by the silver-salt, is seen occupying the site of the cell-body. In the last event nothing but the barest traces of the prolongations of the cell are to be found.

The nerve-fibers of the layers are quite freely stained in many of our sections, but even when the degeneration of the dendrons or of the cell-body is particularly well marked there is no lesion of this portion of the neuron. Cells that are greatly frayed and eroded in their bodies have perfect neuraxons,

FIG. 7. FIG. 8.

Fig. 7.—Micro-photograph of the finer portion of the ascending process of a normal long-stemmed pyramidal cell, showing the arrangement of the gemmules.

Fig. 8.—Ascending process of a pyramidal cell from a serum-brain from the same level as Fig. 7. The tumefactions and loss of the gemmules are very distinctly shown.

FIG. 9.

Bifurcation of the long process of a pyramidal cell from a serum-brain, showing a swelling of the normal enlargement at the forking, loss of the gemmules over it, and large knots in the course of the finer branches. Enlargement about 550 diameters.

and these may be traced far downward into the white medullary layers. Cells that are apparently almost totally destroyed are too few in number to allow of any accurate knowledge of their axon. The collaterals of the axis-cylinders of the pyramidal cells may be followed to their bulbous free extremities; nor do fibers coming from more distant regions and passing upward, to terminate in the molecular lamina, show anything but a perfectly natural condition. There is no increase of varicosity, no breaks in the staining of the nerve-thread, no difference in the appearance of the terminal apparatus.

9*

CORTEX OF THE CEREBELLUM.

The changes in the nerve-bodies resemble those in the cerebrum, but are less intense. The twigs of the Purkinje cells are often bared of their protoplasmic fur, have an occasional swelling, but are not highly degenerated. Normal Purkinje cells preponderate over abnormal ones. The free extremities of the dendrons show the alterations to a greater extent than the ones closer to the corpus of the cell, as if the swelling were just beginning. The neuraxons of these bodies are distinct and perfect. The *Korbzellen* stain infrequently, and nothing definite can be said of them. The Golgi cells are well shown, but alterations in them are slight.

Very numerous axons from the *Korbzellen*, Golgi and recurrent branches of the Purkinje cells are well stained in the molecular layer, but show nothing abnormal. Some beautiful specimens of the arborescent endings of the fibers intermingling and terminating among the branches of the Purkinje cells were found, but they also were perfectly normal, to all indications. The neurogliar structures, both in cerebrum and cerebellum, stained in numbers neither above nor below the control, and show no structural changes in their protoplasm deviating from the normal preparations. The degeneration of the nerve-cells is, therefore, probably a simple non-inflammatory process, unaccompanied by any proliferation of the supporting elements.

While the small number of the pathologic serum-brains does not allow us to speak with entire positiveness of the lesions of the cortical cells, yet from their constancy in all our preparations it is more than probable that we have found a new class of degenerative changes of the nerve-cell that will ultimately prove of the greatest importance in a long series of irritative abnormal conditions in the human subject, and will also open up a new field for the student of mental changes.

The absence of vascular lesions of importance precludes the possibility that alterations of nutrition from disease of the vessels are of the first importance in the production of the degeneration of the dendron. Much rather would we refer them to the direct action of the toxalbumin upon the cellular protoplasm, causing, in some unknown manner, at first swelling of the substance of the dendron, and later atrophy and destruction.

***The Death of Dr. J. W. H. Walker.***—At a meeting of members of the class of 1893 of Jefferson Medical College, on Thursday, August 22, 1895, resolutions were adopted, deploring the untimely death of their classmate, Dr. J. W. H. Walker, and expressing sympathy for his family in their bereavement.

***Prof. Hoppe-Seyler***, the distinguished physiologic chemist and Professor of Physiology and Pathology in the University of Strasburg, died suddenly in an apoplectic seizure on August 12th.

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## CLINICAL LESSONS.

### *Hysterical Contractures.*

BY S. WEIR MITCHELL, M.D.,
OF PHILADELPHIA;
PHYSICIAN TO THE ORTHOPEDIC HOSPITAL AND INFIRMARY FOR NERVOUS DISEASES.

(Concluded from page 206.)

I DISMISSED last week a case of contracture in which the legs were in extension. I read you the notes as an interesting contrast to the flexor-spasms just described. I like also to speak of this case because it illustrates one very rational way of dealing with a partially developed hysteria, for really, despite a long history, it was undeveloped. A year or so more at home would have given us another bed-case.

Annie P., an unmarried white girl, seventeen years of age, was sent to me for treatment, and was admitted to the Infirmary, November 3, 1894. The family history was negative. She had four brothers and five sisters who were living and well. The patient was a small child at birth, but always enjoyed good health. She had the ordinary diseases of childhood, and a slight attack of typhoid fever, and attacks of influenza in 1890, 1891, and May, 1892. After partial recovery from the last attack she suddenly began to suffer from pain in the right heel and the arch of the foot, with a feeling as of a "large stone in the shoe." Hot water gave relief. The pain returned, and was now better and again worse. The heel and indeed the whole foot, and later the calf and the outer side of the thigh, became very sensitive to touch, and were also the seat of much spontaneous pain. Later, pain appeared in the left heel and spread similarly.

About one year after the first attack the girl was suddenly seized with acute and severe pain in the sacrum, which crawled slowly up the whole spine. Motion of the arms and legs, she said, made the pain worse. She now took to her bed (May, 1893). In one day, soon afterward, she became rigid, with the arms spread out laterally, the head retracted, and the legs extended. Pain was then severe in all the extremities, but not alone in the shortened muscles. It gradually grew less toward evening, but the rigidity continued. The patient was never unconscious. During the summer of 1893 she recovered sufficiently to walk a little, but she still had great back-pain and frequent relapses.

In October, 1893, after walking "too far," she was given a hot bath. When taken out she fainted, and had "heart-failure" and frequent trouble with her heart afterward. She was almost constantly on a bed or sofa from that time, and had occasional attacks of asthma during the year before coming under observation. Menstruation, regular and painless before the present trouble, was still fairly regular, but the flow was very dark and offensive, though quite free. Otherwise there were no signs of disease of the genito-urinary organs. The appetite was fair, considering the very long confinement. Digestion was good. The bowels were costive.

Examination showed a slightly built, anemic looking girl, weighing 83 pounds. She said that at twelve years of age she weighed 97 pounds. She was very much emaciated, especially in the legs. The growth of hair was unusual and excessive for her age and sex, all over the body as well as on the head. The skin was in good order, and the nails smooth and well formed. All touch anywhere on the legs and feet was painful, especially on the inner aspect. This sensitiveness varied from time to time. A slight touch was painful; pressure excessively so. The nerve-trunks seemed no more tender than the muscles. Two points were nowhere distinguished as one on the feet at less than an inch, and at a slightly less distance on the legs. The temperature-sense was normal. The abdomen was not sensitive, and there were no hysterogenic zones in the ovarian regions.

The girl was without pain in the arms. There was apparently a slight thickening about the spinous processes in the lower dorsal region, and the processes were excessively sensitive. The whole spine and the gutter on both sides for a distance of an inch-and-a-half or two inches was very tender, with areas of exquisite hypersensitiveness between the shoulders, at the waist, and over the whole sacrum. Firm pressure with the palm of the hand over the sacrum was less painful than touch. Use of the arms, she said, increased the spinal pain and tenderness. The knee-jerk was slightly increased, and easily reinforcible by motion and sensation. There was no clonus. Elsewhere the muscular and all other reflexes were normal. A presystolic murmur was heard at the base of the heart and along the left side of the sternum, and faintly in the axilla and at the apex. The pulse, which was soft and wanting in fulness and force, varied from 100 to 120. Respiration varied from 30 to 50.

It is rare to see as great sensitiveness to touch as Miss P. exhibited, and still more rare to find the muscular tissues sensitive. As to contracture, the condition found was rare and curious. The extensors and flexors all felt firm, but the result was a stiffening of both legs in extension. The feet were less drawn. The arms were not in a state of contracture. All efforts to flex and, after flexion, to extend the legs met with that continuous yielding resistance common in spastic states, and to which long ago I gave the name of "lead-pipe" symptom.

At my second visit I ordered the girl to walk, and, despite her disbelief in her power to obey, she was able with small help to get up and take a dozen steps, during which the heels did not touch the floor. Two years on bed or couch made this exertion difficult. But having once given her reason for hope, I put her back in bed, and for two weeks forbade exercise, while massage and tonics and good diet were employed. She gained rapidly in flesh. The corpuscular blood-count doubled after a week of massage;[1] all the functions began to re-

[1] See paper by John K. Mitchell on the "Influence of Massage on the Blood-count." American Journal of the Medical Sciences, 1894.

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sume their orderly action. She was then allowed as a favor to rise and walk, and two weeks later was able to go home in excellent condition.

In the present case I insisted on this bed-ridden girl walking. I showed her that she could do so, and promised her that the pains in the back and leg would leave as she grew more and more able to exercise. Had I failed as to my predictions I should have doubly injured the case, but when one has had a long experience with hysteria it is easy to select the cases for abrupt exercise of authoritative influence. There were doubt and tears, but she walked, as ordered.

There is much to dwell upon in the cases I have brought before you. But now it is, above all, the prognosis and the treatment to which I desire to call attention. Charcot has said that very marked decrease of faradic contractility ought to make us suppose that the spinal cord has been invaded, and that the existence of a spinal organic lesion of more or less gravity will be placed almost beyond doubt, if, under the influence of deep sleep induced by chloroform, rigidity of the members only gives way slowly, or even persists to any marked extent, or if with this the faradic reactions are greatly lessened.

You will have seen that I do not altogether agree with this great student of disease, and that I approach these cases in a far more hopeful mood than I could do if I accepted the despair that his dictum would bring.

The treatment need hardly be set forth in detail. Above all, get your hysteric away from her audience. A hospital-ward is no place for her. But if you cannot deal with her elsewhere, treat the case as commonplace or trivial, and call no attention to it. For the rest, all the toning means are of use, and there are moral tonics not to be neglected, but for which a prosperous hour must be chosen.

It is well to say that the more you can improve the nutrition of joint, muscle, and nerve by mechanical and electric tonics, the better will be your chances of success when at last section of tendons becomes desirable.

I have put aside a final case of contracture in the male because of the doubts I long entertained as to its origin.

W. H. G., thirty-three years old, an unmarried railroad-clerk, was sent to me by Dr. W. S. Beebe, of Kirkwood, N. Y. Dr. J. E. Talley has made the following notes of his case: The man's father is living and well. His mother died of typhoid fever at fifty-seven years of age. He has one sister, in good health. There are no known family diseases. The patient himself had the ordinary diseases of childhood, excepting scarlet fever. He had pneumonia at nine years of age. He never drank to excess, nor has he ever abused the tobacco-habit. He certainly has had no syphilis.

The series of ailments that ended in what you see began with bronchitis in 1890. His physician said that at the time he was run down from overwork, and ordered him to take a vacation. He went away for two months and returned to his desk feeling much better. After working for a month, he was on November 6, 1890, "seized with chills," and had three in succession. After this he was confined to bed for fourteen weeks, suffering from what was described as "nervous prostration." His physician said that he had some lung-trouble, but that the major part of his illness was mere lack of power. It was not until five months later (April, 1891) that he was out of bed permanently, and was only able to walk with canes. He had then to use his eyes in walking, and was unsteady on closing them and in trying to stand. At this time, he tells us, the knee-jerk was present, and this is probable, as the patient is very intelligent and has studied his symptoms assiduously and closely.

During 1891 he got much better, and walked without a cane, except when going a long distance. He still continued to cough more or less during this time.

In March, 1892, he felt well enough to go down to El Paso, Texas, to take charge of an office. There he lost his cough, gained in weight, and was doing very well until August, 1893, when a "very dear" friend and fellow-worker died of hemoptysis. The shock of this loss, coupled with extra work, seemed to be too much for him, and again he began to fail.

From September 1, 1893, he had pains in his feet, which continued until December, 1893, when he took a mustard foot-bath for their relief. On the following morning he awoke to find his legs drawn up at the knees, just as they were when he came to me for treatment on March 15, 1894. The thighs were rigidly flexed on the abdomen at a little less than a right angle. There was also spastic adduction of both thighs. No other contracture existed at that time or since, except of the gastrocnemii. The contractions, however, continued to become more complete and more rigid. As to sensation at this time the man remembers nothing of value.

On admission to the Infirmary the contracted and symmetrically wasted state of the lower limbs described was very apparent. The right foot was flexed firmly against the buttock, a forcible pull on the foot being required to separate the heel from the buttock. The left foot and leg were in the same position, except that the heel could be separated from the buttock a distance of a foot-and-a-half by force. The hamstring tendons on both sides were very rigid, as were also the muscles of the thigh and leg on both sides. The man could move the toes of both feet fairly well, but flexion and extension at the ankles were limited. There was absolutely no available power above the ankles, every muscle being rigid.

The patient said that the wasting of the limbs was really not great, as he had always been very thin. The circumference at the middle of the right thigh was 35 cm., of the left 35½ cm., at the mid-

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dle of the legs on either side 10 cm. The whole body was extremely emaciated. The hands showed disproportional wasting of the interossei muscles and of the thenar and hypothenar eminences. There was no clubbing of the fingers. The dynamometer registered 55 in either hand. The spinal column showed nothing abnormal, excepting scars of previous cauterization.

Sensation was normal until we examined the feet. In the left foot sensation as to touch, pain, and temperature was absent on the whole dorsum, the anterior third of the sole, and the heel. The mid-region recognized touch. On the right foot there was an absence of sensation on the first, fourth, and fifth toes; touch was felt in the third and fourth toes on both surfaces; also on the dorsum and on the sole generally, except at the heel. It was nowhere normal on either foot, but improved above the ankle until at mid-leg it seemed perfect.

These facts are interesting, because there is no account of early loss of feeling. It seems certain, however, that this anesthesia must have been an early symptom. The overwhelming pain appears to have detracted attention from the merely negative sign, loss of tactile sensation.

Pain had been felt in the legs before contraction came on, but was never severe, and was taken to be rheumatism. The pain that came after the contractions had lasted fifteen days was more severe and of a different character. It grew to be at last the absorbing feature of the case.

There have been no bedsores or evidences of grave trophic disorder. Co-ordination was good in the arms and fingers. Station and gait, of course, were not obtainable, the man being bedridden and very nervous.

The knee-jerk was not obtainable on account of the spasticity of the muscles, nor could we get ankle-clonus or muscle-jerks in the legs. The epigastric, abdominal, and cremasteric reflexes appeared to be normal, as was the elbow-jerk. The man has never had incontinence of urine, but has had to be catheterized some five times since 1893. He has had no priapism; and, in fact, very seldom has an erection. He has also had perfect control over the rectum.

Dr. Archibald G. Thomson reported upon the eyes: "The pupils are equal and dilated. They react in accommodation, but not to light. The media are clear. The discs are a trifle grayish, the arteries small. The fundus is pale. The muscular balance is good."

There was no reversal or contraction of the color-fields.

With the man on his back, the chest-expansion was 1¼ inches. The percussion-note was higher-pitched above the right than above the left clavicle, and a full inspiration heightened the pitch on the right side and but very little on the left. The whole right side moved less than the left. Respiration was a trifle harsh at the left apex, and expiration was here prolonged and more marked than inspiration, but of about the same pitch as elsewhere. There was very little change in vocal fremitus and resonance on the left side, but on the right chest anteriorly the voice was conveyed much more clearly than elsewhere. On full inspiration there were moist rhonchi at both apices, more marked on the right. Posteriorly the eleventh rib on the left showed a prominence, as if it had been broken.

On having the patient sit up it was observed that the left nipple was slightly higher than the right. The right chest moved more (¼ inch) than the left during respiration. A musical murmur, systolic in time, was heard at the end of expiration over the base and at the apex of the heart. The apex-beat was found to be in the fourth interspace, with the greatest impulse at the sterno-costal junction.

Staining the sputum for tubercle-bacilli was negative; urinalysis also was negative.

It was evident that the lung-condition had nothing to do with the paralysis. There was much difference of opinion as to the cause of these very interesting contractures. The absence of a previous hysterical history led some of our staff to regard the case as one of spinal hemorrhage.

As to treatment I had no indecision. The great flexion of the thigh on the pelvis, as in Miss C.'s case, kept the sciatic nerve stretched at the notch. There was but one remedy. As to what more we should win besides relief from pain I could not anticipate.

At my desire, on March 29, 1894, Dr. Keen operated on the right leg, dividing the thigh-muscles at their attachments to the pelvis; also the inner and outer hamstring tendons. He could not bring the leg to a straight position even then on account of the rigidity of the parts, and for fear of tearing the contracted femoral vessels. The limb was dressed, a double-inclined plane and extension-weights applied, these to be gradually increased. The extension-apparatus slowly accomplished its purpose, but was somewhat hampered by the development of a small bedsore over the sacrum as a result of the necessity of keeping the man constantly on his back. This soon healed, and the limb was then more actively extended each day by increasing the weights.

As this extension at once eased and soon put an end to pain in the leg on which Dr. Keen had operated, it was thought well to treat the other limb in like fashion. This was done June 19, 1894.

On December 7, 1894, both Achilles' tendons were severed. The patient has now no pain, and has gained from day to day and month to month in the straightening of the limbs, in moral courage, and in increasing freedom from nervousness.

Except for an attack of diphtheria, which necessitated removing the man to the Municipal Hospital in December, 1894, until January 22, 1895, he has been making constant improvement. His present state (February 4, 1895) is as follows:

A faint systolic murmur is heard over the apex of the heart and at the base. No circulatory disturb-

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ance exists. The lungs have cleared up. There is no cough or expectoration. The hemoglobin-value of the blood is 95 per cent., and the man looks ruddy. There is an absence of the neurotic facies. The muscles are less wasted, but firm, and respond well to the faradic current everywhere, even in the legs. There are no tender spots on the body and no evidence of neuritis. The man controls his bowels and urine normally. There is no priapism or other abnormality of the genital organs. The weight to-day is 101¼ pounds, being a gain of only 6¼ pounds since admission to the wards.

There is still general emaciation, but the thighs and legs are somewhat more wasted than other parts of the body. There are to be seen the scars of the operations on the thighs and legs. There are no excoriations, no clubbing, or other evidences of trophic disturbance other than those caused by lack of use of the muscles.

The right thigh is in a straight line with the abdomen as the patient lies on his back. The leg can be extended to an angle of 170° with the thigh. The right ankle is perhaps a little extended, the toes being slightly flexed.

The left thigh is also in a straight line with the abdomen, as is the left leg with the thigh as the man lies passively on the bed. The ankle, foot, and toes are in good position.

Both thighs can be freely flexed, adducted, and circumducted, and there is the same voluntary control over the knees, legs, and ankles. The toes are less freely movable. The man walked five feet with the assistance of the nurse and a chair to-day. The grasp is good and equal, and no other motor palsy exists.

The patient has taken tonics, cod-liver oil, etc., and since September 17, 1894, he has had massage and movements with faradism daily to the affected limbs.

Early in April Dr. William J. Taylor divided the muscles on the inner side of both feet. This was needed because of the swelling and pain in the feet when the man was long afoot, and which seemed due to the cramped form of these parts.

On May 11, 1895, the man was walking a little on crutches—and improving. After exercise the feet were still more or less painful. He has steadily grown better up to this date (June, 1895).

The case, as you have heard it, does not enable us to be sure as to the immediate cause of the trouble. G. has been asthenic—neurasthenic, if you please; he recovers, goes South, and, as a railway-clerk, is overtaxed and much worried. For ten days he has aches in the legs, and awakens at last with his legs drawn up.

Are these hysterical contractures? At first they could be relaxed under ether. Must we accept Charcot's dictum that this is a certain sign of their hysterical origin? There was probably some early loss of sensation, but if, as has been suspected, these spasms were due to a hemorrhage within or on the cord, we might well have had this symptom. I confess that there was too little disturbance to allow me to entertain the latter diagnostic theory. Here is a man who sleeps well and awakens with great and increasing contractions, and probably with more or less anesthesia. In time the reflexes fail or lessen; the electric reactions are quantitatively diminished, and the mechanical reactions lost. All this might come from a neurotic, functional spasm, and it all reads like the progressive story of an hysterical disorder. It differs in no wise from the cases of Miss C. and Miss H., except that there are no other hysterical signals flying, such as their more complete hysterias too fully show. Also in this (G.) case the reflexes have come back, the electric reactions are all better, and here and there we can call out movement by a blow with the hammer. At present G.'s legs are straight, or nearly so, and the muscles are all improving. Where and when these gains will end I do not know; but certainly so far, in the light of treatment, the case does not read like one of organic disease of the cord, nor like any form of neuritis.

My conclusion is that in this case we have hysterical contractions in the adult male, a rare phenomenon, in this country, at least, where we have the nervous temperament, but are not neurotic to the extent seen in the Latin races.

Fortunately these general contractures are rare. But, whether general or local, if they have proved during four or five months amenable to no medical means, then I counsel the use of the knife and the section of tendons. It is true that Charcot and others have described cases in which, after years, contractions ceased abruptly and the limb was as before. The statement should have had a long appendix of exceptions. In cases of moderate contracture, not drawing the part to an extremely acute angle, sudden recovery may leave the joint undamaged. But in grave cases this never can be the case with joints like the knee, which is always the most difficult articulation to deal with. A long, violent contraction of the flexors partly luxates the tibia backward, and results in joint-changes which, after years of contraction, are incapable of cure.

In these knee-cases, perhaps in all articulations long out of place, there is probably soon or late more or less of that kind of inflammation which is also seen in joints too long on a splint. If this be so, a part of the failures to respond to electricity may be due to the muscular wasting so commonly observed in connection with damaged joints.

But, whatever the cause, I have seen hysterical contractions in which, after section of tendons, the joints were too much altered to admit of useful restoration. The leg, bent at an angle of 45°, is brought, by section and the screw, to a much larger angle, but cannot be made straight enough for use. There is motion within limits, but with weak muscles and bent legs the effort needed for walking becomes

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excessive. Under these circumstances crutches are essential, and there may arise a question as to the propriety of making the leg straight by an operation that will leave it rigid. Above all, I desire to impress upon you finally that a contracted limb is not a limb to confide to the rare relief brought or not brought by time.

I have desired to call attention in this paper to certain hitherto unnoticed clinical facts:

1. Two forms of hysterical contracture exist. One concerns single parts and limited groups of muscles. In this the contracture may last for years without the addition of organic changes in muscles, joints, or interstitial tissues. In this also sudden cessation of contracture is possible.

2. A form of contracture exists which attacks in succession one limb after another, until soon or late all or nearly all the voluntary muscles, as well as those of the trunk, may become involved. The cases of this group do not, in my experience, ever get well abruptly. In them the muscles, joints, and areolar tissues undergo serious organic changes.

In the first or limited form the muscles and the muscular reflexes remain unaltered, or are but little changed, and mechanical and electric responses continue to be normal or nearly so. In the second or generalized form, the reflexes are lost or interfered with late in the disorder, and the electric responses are quantitatively lessened, and may, in time, be almost altogether lost. It is only in this form, after years of life in bed, that we may expect to see changes in the cord. Whether these are merely independent accidents, or are the rare secondary products of the hysterical condition or of the organic changes this occasions in the peripheral nerves and muscles, we do not yet know.

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## *ERUPTIONS SIMULATING THAT OF SCARLATINA.*

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THAT the rash of scarlet fever can be closely simulated by various other eruptions is a fact, unfortunately, only too well known. The difficulty in diagnosis depending upon this similarity is often so great that a recapitulation of some of the conditions that may give rise to the confusion may not be amiss, although no attempt can be made to enumerate them all. Certain cases that have occurred in my own practice have been so puzzling at the time that some of them may be used by way of illustration of the points to be brought out.

As a matter of course, no disease can be studied from a single point of view or in the light of one symptom merely. Were the rash of scarlet fever all that physicians had to guide them, they would be far oftener at sea than they now are. On the other hand, could they always see the end from the beginning; could later symptoms, in the nature of things, appear with the first development of the rash, errors in diagnosis would be much less frequent.

To the matter of diagnosis in general, and to the ordinary symptoms of the disease, but little attention need be paid in this connection. The later course of the case usually makes the diagnosis plain. It is only the comparative study of the cutaneous eruptions that interests us at present.

The eruptions that most often resemble that of scarlatina are various forms of erythema. One of the most puzzling, although comparatively less frequent conditions, rendering the diagnosis of scarlatina difficult, is the occurrence of an erythematous rash attending tonsillitis. A cursory examination of medical literature has not shown me much written upon the subject, yet the condition is one that undoubtedly occurs. Its recognition is all the more difficult on account of the fact that the combination of sore-throat with eruption is exactly what we would expect to find in scarlatina. A few years ago I saw the following very characteristic instance of the condition:

An adult woman was admitted to the Hospital of the University of Pennsylvania, suffering from tonsillitis. A few hours later it was noticed that she was covered with a not very well developed rash, having all the characters of that of scarlatina. By the next day the rash had disappeared, and no desquamation followed, making the diagnosis of erythema reasonably certain.

It is, indeed, only to be expected that cases like this should occur frequently, when we remember that both erythema and tonsillitis are often local manifestations of rheumatism. I have known of cases in which there was no question of the rheumatic nature of the scarlatiniform rash, in which tonsillitis and an erythema exactly resembling the eruption of scarlet fever were associated with articular and cardiac manfestations of rheumatism. Such a case, too, was recently reported by Boyd,[1] in which tonsillitis was followed by a decidedly persistent erythema, with pain in the fingers and wrists, and in which, although scarlatina was at first strongly suspected, the later course of the case and the articular involvement removed all doubt. Sometimes, it must be remembered, we find cases that we suspect of being merely tonsillitis with erythema, but which turn out to be scarlatina. Instances of this nature show the importance of insti-

[1] Medical Record, February 2, 1895, p. 143.

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tuting proper treatment and quarantine in all doubtful cases.

The condition known as surgical scarlatina may be considered in this connection. It is to some extent a very puzzling one, and one about which writers are not agreed. Some make the statement that surgical scarlet fever is simply scarlet fever occurring in a surgical case. Others take the ground that the disease is a manifestation of septicemia. It seems certain that some of the cases, at least, are not examples of scarlatina, although greatly resembling it at first. The distinction is most important, as the question of the danger to others must be considered. The following case illustrates the occurrence of septic erythema resembling the rash of scarlet fever:

M. S., aged eleven years, a patient at the Children's Hospital, suffered from caries of the right fibula. On November 15, 1894, a large sequestrum was removed by Dr. John Ashhurst, Jr. The temperature remained at about 100.4° until November 20. During the night from the 19th to the 20th there was found a rash covering the whole body, which was described in the clinical notes as "measly," and which extended from the roots of the hair to the soles of the feet. The temperature fell to normal when the rash developed. On November 21, at 8 A.M., the rash was still macular, but no longer looked like that of measles. By 11 A.M., at the time I first saw the child, the eruption looked precisely like that of a well-developed scarlatina. The throat was slightly red, the general condition excellent. There was still no fever, and the pulse was 92. On November 22 the rash was fading. On November 23 it had almost gone; it left an appearance like slightly injected "gooseflesh." On November 24 the condition was much the same. On November 27 all signs of the rash had gone. No peeling followed.

No isolation whatever was practised in this case, as the diagnosis was made early. Had the disease actually been scarlatina it is scarcely possible that other children would not have contracted it.

The disease known as puerperal scarlet fever is of the same nature as the surgical variety, viz.: usually erythematous and of a septic origin. Of course, true scarlatina may occur in the puerperium.

Another, and a very curious instance of an erythema that had considerable resemblance to the eruption of scarlatina is the following. The origin of the attack in this case I was never able to discover:

Mamie McF., aged seven, presented herself on June 30, 1890. She had been perfectly well the day before; had slept well, and had had no vomiting or fever. She woke in the morning covered with a rash, which the mother said looked then as it did when examined by me at about 11 A.M. At this hour the face was slightly swollen and puffy, and an indistinct reddish color was visible about the nose and chin. The eyes were not suffused. Over the front and back of the chest, and on the arms and thighs, there was a perfectly smooth, rose-red color, resembling in appearance in the denser portions more the eruption of erysipelas than that of scarlatina, inasmuch as there was an entire absence of the punctate mottling that characterizes the latter affection. In the less dense portions of the color the likeness to scarlatina was more pronounced. On the legs proper, and on the wrists, were some few papulo-macules the size of peas, and larger in area. The temperature was 98.6°. There was no redness or swelling in the throat, and no enlargement of the superficial cervical or other glands in the neck. The tongue was clean, and without enlarged papillæ. On June 21 the eruption was entirely gone.

This case might easily have deceived the unwary. Close examination would, however, have made one suspect rather the existence of *rubella scarlatiniforme*, to which reference will be made later, especially in view of the presence of the macules on the extremities. The sudden and complete disappearance of so extensive an eruption placed it beyond doubt in the class of the erythemata.

A scarlatiniform rash occurring after the administration of enemata has been described by Suckling and others. It has never been my fortune to meet with this. Very often the diagnosis between scarlatina and some of the rashes resembling it can be made only by the later course of the attack. If the peculiar peeling takes place we have good reason to suspect that we have had to do with scarlatina. This applies to the diagnosis between this disease and rubella and most of the instances of erythema, but it is a rule by no means without exception. That is to say, the absence of peeling would render the existence of scarlatina rather improbable, but its presence is not certain proof that scarlatina has existed. The following case is an illustration in point. It is probably to be considered one of septic erythema.

Helen P., aged ten years, had undergone an operation upon the septum nasi on November 28, 1894. On November 31st there was no fever, but pain in the nose. On December 1st, in the evening, a rash was found on the chest. There had been no premonitory symptoms, and the child had been well all day and apparently free from fever. The rash was bright red and extended over the front of the chest as far as the lower ribs and high into the armpits, but did not reach the back. The skin was perfectly smooth. The itching was quite annoying. On December 2d the eruption was paler in the morning, but bright again in the evening. The child had vomited, but this was after taking castor-oil. The general condition was good. On December 3d the rash was paler and peeling had commenced. This was identical with that seen in scarlatina, and was most marked in the armpits.

Of course the limited area of the eruption was almost sufficient to negative the diagnosis of scar-

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latina, even without taking into consideration the absence of other symptoms. Yet we cannot make the limitation of the eruption to certain parts of the body a test for the absence of scarlet fever. As a matter of fact, the extent of the eruption is no guide in diagnosis. In malignant cases, as is well known, little if any rash may appear at any time. In very mild cases, too, the rash may be very limited in extent, as the following case illustrates:

Willie C., eighteen months old, while apparently still in perfect health and without fever, yet exhibited a slight erythematous rash upon the inner side of each thigh. I supposed it to be simply a slight erythematous eruption from an unknown cause, and gave this as my opinion. A short time later the characteristic peeling of scarlatina took place. Scarlet fever occurred, too, in another member of the family.

Cases far more puzzling than that of Helen P., already related, have been reported. For instance, we may recall the interesting ones published by Blanc,[1] in which recurrences of a widespread eruption, followed by desquamation, had several times caused physicians to make the diagnosis of scarlet fever in two patients. Similar cases have been observed by others both in this country and in Europe, and the disease has been given different names, such as *erythema exfoliativum recurrens*, *erythema scarlatiniforme*, etc.

There are other conditions that might cause difficulty in diagnosis if we depended upon the rash alone, and which, indeed, may sometimes give us trouble in spite of careful study. Various drugs are capable of producing an erythema that may look much like that of scarlet fever, although it oftenest takes the form of a maculo-papular rash simulating that of measles. Thus, for instance, quinin is capable of producing a scarlatiniform eruption. Antipyrin may do the same, although the antipyrin-rash is generally rubeolous in appearance. Copaiba may also bring out an erythematous rash. The use of the diphtheria-antitoxin has brought out the fact that this, too, or at least the blood-serum containing it, is capable of producing an eruption resembling that of scarlet fever. Belladonna may produce an eruption that may be very confusing. In the case of a little boy of ten years, suffering from scarlet fever, the homeopathic attendant had given so much belladonna that it was impossible at first to determine how much of the redness of the skin and dryness of the mouth was due to the disease and how much was caused by the drug.

A scarlatiniform eruption may occur in the course of different diseases. Rarely it is seen attending gonorrhea, independently of the use of copaiba, and it is then probably septic in origin. It may also occur with typhoid fever, usually early in the disease, and may exactly resemble the rash of scarlet fever.[1] As is well known, a scarlatiniform rash appears in many cases among the prodromal symptoms of smallpox. This may be widespread, although it is usually limited to certain regions of the body. In varicella, too, an erythema may be among the prodromes in exceptional cases. There have been a good many cases reported of the coexistence of varicella and scarlatina in one person. This does occur, but in many instances it seems very possible that the apparent combination has been due to the development of an erythema during the existence of varicella. Thus, in a case that I saw a few years ago, a child, while exhibiting the ordinary eruption of varicella, developed a rash that had all the appearances of the genuine eruption of scarlatina. I supposed that here was an instance of the coexistence of the two affections. However, the rapid fading of the color, the absence of any symptoms of scarlet fever, the failure of desquamation to appear, and the fact that no other children in the house contracted the disease, rendered it probable that the eruption was erythematous merely.

Diphtheria may sometimes, although not commonly, exhibit an erythematous eruption that is capable of obscuring the diagnosis. The fact that in malignant cases of scarlet fever the rash may be entirely or nearly absent, while the throat-symptoms are very pronounced, adds to the difficulty. Of course, the frequency with which diphtheria occurs in combination with scarlet fever is still another complicating factor. The case of Florence F., detailed later, illustrates the difficulty sometimes attending the recognition of either disease.

It would seem almost impossible that an affection with such a characteristic rash as measles could ever be confounded with scarlet fever, and such, indeed, is the case, if we are guided by the complex of symptoms of the two diseases. As far as the rash itself goes, however, it sometimes happens that the eruption of scarlet fever in malignant cases is a good deal like that of measles. In these cases a very imperfectly developed rash may be decidedly macular, although, it is true, it is nearly always in some parts sufficiently characteristic, with the presence of other symptoms, to render the diagnosis plain. It is rather scarlatina resembling measles than the reverse. The extracts from the history of the following case illustrate the appearance that the rash of scarlatina may sometimes assume:

Florence F., aged two-and-one-half years, was on March 5, 1895, taken sick with sore-throat and a scarlatina-like rash over the trunk. On the 6th the rash was poorly developed, while the temperature

[1] International Clinics, October, 1891.

[1] See article by Ohman-Dumesnil: Journal of the American Medical Association, August 2, 1890, p. 164.

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was high. On the 7th a little white deposit was visible on the tonsils. The rash was now only slightly out. On the 8th large white patches could be seen in the throat; the urine contained albumin; the rash was more distinct. On the 9th the rash was more pronounced than the day before, and there was a diffuse, bright redness over the buttocks, but about the knees there were bright-red patches distinctly infiltrated with serum, and thus harder and slightly more elevated than the surrounding skin. On the right leg the rash was decidedly papular and looked not at all like that of scarlatina, but rather like that of measles. On the 11th the membrane was nearly gone from the uvula; the hands were swollen and red; the papular eruption was present about the wrists and knees, and several ruptured, flattened vesicles, like those of varicella, had appeared on the hands. On the 13th the throat was much better. There was, however, a good deal of discharge from the nose. The child was still heavy and stupid. On the 17th the throat was nearly clear; there was still much discharge from it and from the nose; peeling had begun two or three days before. On the 19th the temperature was still high, and membrane reappeared in the throat. On the 21st the general condition was evidently worse; the child was delirious; there was extensive sloughing on the right side of the throat inside and to less extent on the left. Cutaneous emphysema was present down to the upper part of the chest. The case need not be further followed. Klebs-Loeffler bacilli were found in the throat. The respiration became a little croupy and later distinctly stenotic. Membrane was discharged from the nose. The child died on the 26th.

The rash in this case was not at all characteristic of scarlatina. Although resembling much more that of measles, this disease could practically be excluded by the nature of the other symptoms. The more important question was whether we had here to do with diphtheria at the outset in combination with an erythematous rash; but the course of the disease, the temporary improvement, followed by a return of the throat-symptoms and the occurrence of peeling, make it practically certain that the case was one of malignant scarlatina, followed by diphtheria.

Finally, and perhaps most important, as it is most puzzling, is the fact that the rash of rubella very frequently simulates most closely that of scarlet fever—so closely, indeed, that in mild cases of the latter disease the diagnosis may be impossible until, perhaps, the characteristic peeling later clears up the uncertainty. So common is this similarity that in the article[1] previously referred to this form of the affection is designated *rubella scarlatiniforme*. The rash in these cases becomes universally confluent, is not at all elevated, and may exactly resemble that of scarlatina, except that one can usually find at the ankles or wrists a papular or macular marking at the edge of, or even in, the general diffuse redness. On this appearance the probable differentiation can often be based. So, too, rubella is likely to show at the beginning the macular rash, even though a diffuse redness appears in a day or two. Yet these diagnostic points, although of service, are very likely to play one false when most needed.

Cases of scarlatina occur in which the macular appearance of the rash on the extremities is quite evident; while, on the other hand, the eruption of rubella, unless studied throughout its whole course, may fail to exhibit any character that can be called distinguishing. The following two cases illustrate the difficulty that attends the matter. I frankly confess that in the first I made a diagnosis of rubella, and was afterward obliged to change it to scarlatina, while in the second the early diagnosis of scarlatina had to be substituted by that of rubella. In retrospect the diagnosis seems plain enough, but at the time it was most perplexing. The histories are given only in brief and with special reference to the appearance of the eruption.

Mattie C., aged four-and-a-half years, was on May 23, 1886, irritable. On the 24th she was feverish and drooping, and sick at stomach frequently. On the 25th a bright-red, diffuse rash covered the trunk. The thighs, legs and arms showed a mottled rash exactly like that of typical rubella. The eyes were slightly red; the throat somewhat sore. The existence of the mottling rendered the diagnosis of rubella justifiable, especially as the child seemed little ill. On the 26th the temperature was 100°; the throat was red; the tonsils were inflamed, and showed some white points. The tongue was bright red, except at a small central spot. The glands behind the sterno-cleido-mastoid were slightly enlarged; those under the jaw not so. The rash seemed evenly red everywhere. The case now looked more like one of scarlatina, although I did not believe it to be this on account of the previous mottled eruption. On the 27th the tonsills were still red; the rash was fading; it appeared elevated on the finger-tips, and somewhat on the legs. The child was feverish, and had talked in its sleep on the preceding night. The palms were deep red in color. A little earache was present, and also considerable pain in the abdomen. On June 1st the child was feeling in a manner entirely characteristic of scarlatina.

John P., aged twelve, came home from school on February 26, 1886, cold and feeling badly, and with an eruption developing. Later he had sore-throat, with some redness of the eyes, but no coryza. The rash was in the form of pea-sized and smaller macules, and the disease was supposed to be rubella. On the 27th the rash covered most of the body, and was confluent in many places. On the 28th the rash was well developed, and so widely spread and so punctate and characteristic of scarlet fever that the diagnosis of this disease was substituted for the earlier one. The temperature and pulse remained only slightly above the normal throughout the attack. There was no characteristic peeling, and

[1] Medical Record, February 2, 1895.

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these symptoms, combined with the earlier appearance of the eruption, make it clear that the first diagnosis was the correct one.

Numerous cases like the last could be cited, but they would simply be repetitions. In the majority I have been able, I think, to make a correct diagnosis, although not upon the appearance of the rash alone.

To sum up, then, we find that the eruption of scarlet fever is not only liable to vary decidedly in different cases, especially of the malignant or very light forms, but that other eruptions may resemble the typical rash very closely; that the erythemata are likely to be very evanescent, and that this peculiarity aids in recognizing them, but that they by no means need to be of this nature; that peeling in a characteristic manner occurs in most cases of scarlet fever, but this may occasionally occur, although fortunately rarely, in other conditions, and, sometimes, in scarlet fever it is scarcely perceptible; that it is even possible for the eruption of scarlet fever to suggest the presence of measles, and that the eruption of rubella can in very numerous cases, with difficulty, if at all, be distinguished from that of the more serious affection.

So much for the difficulties of diagnosis as far as the eruption itself is concerned. With regard to the means of determining that we have actually to do with scarlet fever, and nothing else, the subject is far too large to be entered upon in this connection. It need only be said that it is important, above all things, to endeavor to make the diagnosis from the *complex* of symptoms rather than from the nature of any *one*, whether eruption, fever, tongue, pulse, or what not. In this way the careful physician will usually arrive at a correct conclusion, though not always.

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## *URETHRAL DIVERTICULA.*

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URETHRAL diverticula or pseudo-urethroceles, though sometimes classed together with true urethroceles or dilatations of the middle third of the urethra, constitute a distinct affection, differing from the latter both in etiology and physical signs. The urethral diverticulum consists of a cavity or pouch situated in the urethro-vaginal septum, usually about the middle third and communicating by a narrow opening with the urethra, which is not dilated, but is of normal caliber. In one of the cases reported by Routh the cyst communicated with the urethra by two openings. These diverticula vary greatly in size, some being only the size of a pea, others attaining that of a hen's egg or even larger. In a case operated on by Lawson Tait the size of the sac "was probably as great as that of the bladder." The cyst in this case "ran backward as far as the cervix uteri, and seemed to double up on each side of this structure into small pockets."[1]

The contents of the diverticulum consist usually of pus and urine. In one of Priestly's cases sebaceous matter was found in the sac. Piaseski[2] reports a case, operated on by Serfioti, in which a pipe-shaped calculus, the size of three small hazelnuts joined together, had formed in the diverticulum. It consisted entirely of phosphates. Various theories have been put forward as to the etiology of these diverticula. Santesson ascribes their origin to trauma, inflicted during labor or catheterization, or to rupture of a vaginal cyst into the urethra. Lawson Tait, from an analysis of five cases that occurred in his practice, believes that they are congenital. Winckel records two cases, which he thinks were due to inflammation of the urethral lacunæ. In one of these the walls of the cyst consisted of muscular tissue and their inner surface was lined with pavement epithelium. Routh, in reporting three cases, two from his own practice and one that had been operated on by Percy Boulton, says their "etiology seems to be: 1. Closure of the ducts of pre-existing urethral glands, retention-cysts resulting. Suppuration and ulceration into the urethra by a small, often valvular, hole follows, and the inflammation is kept up by urine trickling into the sac at each micturition. 2. Blood-cysts which have passed through similar changes. 3. The formation of pseudo-cysts by injury to the urethral floor during labor or menstruation."

Boulton considered the origin of the diverticulum in his case to have been suppuration and rupture of a blood-cyst, the result of injury received during labor. The wall of the sac was fibrous, and firmly attached to the surrounding structures. "It was not a true cyst. It contained dark-red, fleshy trabeculæ, suggesting organized blood-clot, and had no epithelial lining." In one of Routh's cases the cyst-wall consisted mainly of connective tissue. Its inner surface was the seat of an inflammatory process; but no epithelium could be seen. The arrest of a vesical calculus in the urethra has been also considered as a cause (Piaseski).

The symptoms are usually frequent and painful micturition accompanied by the sensation of a firm, tender tumor in the vagina, which causes dyspareunia. A quantity of pus, usually ammoniacal and varying in amount according to the size of the sac, is passed from the urethra and may cause consider-

[1] Tait's Diseases of Women, 1889, vol. i, pp. 84, 85.
[2] Nouv. Arch. d'Obstét. et de Gynécol., 1892, p. 236.

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able local irritation. Urethritis and cystitis are frequent complications.

DIAGNOSIS. On examination a firm, tender swelling is found situated in the urethro-vaginal septum, usually about its middle third; but when the cyst is of large size its upper limits may reach the cervix or even further, and, as in Tait's case, pass up into the lateral fornices. On applying pressure to the tumor a quantity of thin ammoniacal pus is discharged from the urethra. In Santesson's case, however, compression of the tumor caused its contents to be evacuated backward into the bladder. By examination with the electric urethroscope the opening in the floor of the urethra can be detected. Should any difficulty be experienced in doing so, the pus will be seen welling up from the aperture on applying pressure to the tumor while the urethroscope is being slowly withdrawn. That the tumor is not a simple dilatation of the middle third of the urethra is shown by the fact that a large-sized sound, introduced into the urethra, does not enter the sac during its passage into the bladder; but by carefully searching along the posterior wall of the urethra with a probe the opening can usually be discovered and the probe passed into the cyst. Unlike a true urethrocele the pseudo-urethrocele can be palpated as a definitely outlined cyst after its contents have been expressed.

TREATMENT consists in dissecting out the cyst and closing the cut surfaces with silk or catgut sutures. Passage of the catheter after the operation is unnecessary unless retention of urine supervenes. After dissecting out the diverticulum, should the parts not appear sufficiently healthy to allow of immediate reunion, which will be of rare occurrence, a soft catheter is introduced into the urethra and allowed to remain for from two to four days. The wound in the septum is dusted over with iodoform and covered with iodoform-gauze. The cut surfaces are then allowed to granulate up, or secondary suture may be performed.

## MEDICAL PROGRESS.

***Gonorrhea of the Uterus.***—At the meeting of the German Gynecological Society recently held in Vienna, WERTHEIM (*Centralblatt für Gynäkologie*, 1895, No. 26, p. 699) maintained that next to the urethra the uterus is the most common seat of gonorrheal infection. In most cases the infection is direct and in many restricted to the uterus. The symptoms are always of acute onset. The distinction between an acute and a chronic stage is legitimate, both clinically and bacteriologically, although a sharp line of separation cannot be drawn. The infection gives rise to inflammation of the uterine mucous membrane, at first manifested by purulent catarrh and leading up to an interstitial endometritis. In a not inconsiderable number of cases of chronic course there results glandular increase—*i. e.*, a glandular endometritis. In addition to the changes in the mucous membrane there occur in many cases inflammatory alterations of the muscular layer, characterized upon the one hand by inflammatory infiltration of the muscular connective tissue, and on the other hand by hyperplasia of the walls of the vessels, leading ultimately to hyperplasia of the connective tissue at the expense of the muscular elements. The swelling and painfulness of the uterus observed in many cases are to be considered evidences of the metritis. The inflammatory changes are progressively less intense as the external os is approached. In some cases gonococci are demonstrable in the inflamed mucosa in greater or smaller number. In many cases, however, this demonstration fails both with the microscope and by culture. The deeper the layers the more difficult is the demonstration of gonococci. It is probable that gonococci are present in the inflammatory infiltrate of the muscular tissue, but the demonstration is as yet wanting. These changes are to be viewed as due to the gonorrhea, first, because the gonococci have been demonstrated in the mucous membrane; second, because in none of the uteri examined have any other bacteria been found; third, because these changes were also marked in all cases (5) in nullipara. Mixed infection or secondary infection appears thus to be as rare under these conditions as in gonorrhea of the uterine adnexa. The internal os uteri seems not to act as a barrier to the ascent of the gonorrheal process. The exacerbations in gonorrhea of the uterus are frequently dependent upon alterations in the nutritive medium as influenced by various unfavorable conditions (such as menstruation and coitus). In many cases, however, they are dependent upon renewed infection. The puerperium is an exceptionally unfavorable state, as during this period an extension of the gonococci to uninvolved parts very likely takes place frequently.

***A Case of Akromegaly, with Temporal Hemianopia and Glycosuria.***—At a recent meeting of the Société de Biologie, MARINESCO (*Le Mercredi Médical*, 1895, No. 26, p. 305) presented a case of akromegaly in a woman, thirty years old, with unusual manifestations. At the age of twenty-two years the patient had had epileptic attacks, occurring three or four times weekly, without aura, and with progressively diminishing frequency. Five years before coming under observation she was seized with vertigo and fell down two flights of stairs. Six months later it was noticed that the feet were increasing in size, and soon a similar change was observed in the hands, face, and chest. For a year there had been increase of thirst and appetite. The urine was passed in excessive amounts and stained the linen. There was considerable loss of flesh and strength. The patient's face was greatly enlarged, particularly in its vertical diameter; the inferior maxilla was prominent; and the lips were thick, particularly the lower. The nose was greatly enlarged, its septum and alæ being quite voluminous. The sternum and clavicles were also increased in size and the breasts were atrophied. Cervico-dorsal kyphosis was present. The hands were enlarged and thickened in both their longitudinal and transverse diameters. The feet were enormous, but the hypertrophy involved especially the antero-posterior diameter. The tongue was greatly enlarged, its surface being marked by elevations and de-

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pressions. The mouth was dry and the gums painful. The area of cardiac percussion-dulness was increased. At the base a presystolic murmur was heard, continuing into the systole. The lower extremities were edematous. Tactile, thermic, and painful sensibility were unaltered. Excepting sight the special senses were normal. Vision was impaired, being one-half in the right and one-third in the left eye. The pupils were paretic, in greater degree upon the left; their consensual reaction was preserved. There was found bitemporal hemianopia; but the hemiopic pupillary reaction was not present. There was amblyopic divergent strabismus of the left eye with passing diplopia. The patient passed from ten to twelve quarts of urine daily, containing an ounce-and-a-half of sugar to the quart and traces of albumin.

***The Immunizing and Curative Action of the Antitoxic Serum of the Calf Against Typhoid Infection.***—BEUMER and PEIPER (*Zeitschrift für klinische Medicin.*, Band 28, Heft 3, 4, p. 320) detail observations showing that animals can be rendered immune to typhoid infection by previous treatment with dead typhoid-bacilli. It was further found that such injections were well borne by a healthy person. Finally eight cases of typhoid fever were treated upon the same lines with favorable results. Further experiments showed that the blood-serum of untreated calves constituted an unfavorable medium for the development of typhoid-bacilli, and that of animals previously inoculated with dead typhoid-bacilli constituted a still more unfavorable medium. It was next determined that animals treated with the antitoxic serum resisted typhoid fever, and that in cases already infected the disease pursued a favorable course. These observers found, as have others, that the typhoid-toxin is largely contained within the bodies of the micro-organisms, and is present in but small quantity in the culture-fluid.

***Chronic Gonorrheal Cystitis cured by Influenza.***—GOLDBERG (*Centralblatt für innere Medicin*, 1895, No. 26, p. 625) has reported the case of a man, twenty-three years old, in which, following an attack of influenza of ordinary severity, a cystitis of gonorrheal origin of more than a year's duration that had resisted active treatment disappeared.

## THERAPEUTIC NOTES.

***The Treatment of Diphtheria with the Antitoxin.***—SPRINGORUM (*Deutsche medicinische Wochenschrift*, 1895, Nos. 31 and 32) reports that from the middle of August, 1894, to April 1, 1895, 206 cases of diphtheria in children were treated at the City Hospital of Magdeburg with the antitoxin, with 78 deaths, a mortality of 37.9 per cent. At first the treatment was carried out only irregularly, moribund and hopeless cases, as well as those of favorable prognosis, being excluded. Subsequently all children were inoculated that presented involvement of the larynx and evidences of septic intoxication, and also those with an unfavorable prognosis. Of 482 cases of diphtheria treated during the same period without the antitoxin, 122 terminated fatally—25.3 per cent. One-hundred-and-thirteen of the cases treated with the antitoxin required tracheotomy, with 52 deaths—46 per cent., while among the 93 not requiring tracheotomy there were 26 deaths—27.9 per cent. On the other hand, among the cases treated without the antitoxin, 140 cases required tracheotomy, with 78 deaths—55.7 per cent., while 342 did not require tracheotomy, with 44 deaths—12.8 per cent. In addition to the treatment with the antitoxin, applications of cold were made to the throat, and gargles of potassium permanganate and aluminum acetate were employed. Young children received a mixture of ferric chlorid and potassic chlorate. When the deposit was extensive and croupous manifestations were present, inhalations of a solution of sodium chlorid were practised. Diphtheric inflammations of the nose and ears were treated with irrigation, and coexistent bronchitis with expectorants.

According to the monthly report of the Bureau of Health of Denver, Col., it appears that in the eight months since December 1st, when the antitoxic serum became available for use, there have occurred 112 cases of diphtheria, and of the total number 25 died. Of these cases, 37 (all but three being identified by bacteriologic examination) were treated with the antitoxic serum, and of these but three died—a mortality of 8 per cent.; 75 cases (of which not more than 30 were determined bacteriologically) were treated without the antitoxin, and 22 died—a death-rate of 30 per cent.

***In the Treatment of Gonorrheal Arthritis,*** BALGER (*Corresp.-bl. f. Schw. Aerzte*, 1895, No. 15, p. 480) immobilizes the member involved and applies to the affected joint an ointment consisting of

| | |
|---|---|
| ℞.—Acid. salicylic. . . . . | 10 |
| Olei terebinthinæ . . . | 10 |
| Axungiæ porci . . . . | 100 |

After the acute stage has passed and the temperature has not exceeded 98.6° F. for several days, the patient is given baths of ten or fifteen minutes' duration, prepared by adding to the usual amount of water from three ounces to a pint of a mixture consisting of

| | |
|---|---|
| ℞.—Olei terebinthinæ . . . . | 100 |
| Sodii carbonatis . . . . | 500 |
| Aquæ . . . . . | 1000 |

Or

| | |
|---|---|
| ℞.—Emulsionis saponis viridis . . | 200 |
| Olei terebinthinæ . . . . | 100 |

Instead of the full bath a local bath containing a proportionate amount of the turpentine-mixture may be employed.

***The Employment of Guaiacol as a Local Anesthetic.***—LUCAS-CHAMPIONNIERE (*Bulletin de l'Academie de Médecine*, 1895, No. 30, p. 146), having observed distinct relief from pain from the application of an ointment containing guaiacol to a burn, was led to employ the same agent by subcutaneous injection for various anesthetic purposes. The results were eminently satisfactory and unattended with unpleasant features. The anesthesia produced compared favorably with that due to cocain. At first a solution of guaiacol in sterilized oil of almonds was made, but later a solution in oil of olives. The strength of the solution was at first 1 : 10, but later 1 : 20. A syringeful thus contained about 10 centigrams or 5 centigrams, respectively. The mode of procedure is especially applicable in minor surgery. The anesthetic effects are observed in from five to eight minutes after the injection.

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## THE MILK-QUESTION.

ALTHOUGH the milk-question has probably always been a subject of warm discussion, never has so much been said and written upon it and from so many different points of view as in the last five years. The bacteriologist, the veterinarian, the pediatrist, the chemist, the legislator, and even the philanthropist have busied themselves with the matter; medical journals have teemed with literature pertaining thereto; commissions have been appointed to investigate the milk-supply of cities; many laws have been proposed to regulate the traffic; large industries based upon the deductions of specialists have been put into operation; private charity has been stimulated to establish depots for providing the infants and invalids of impecunious families with pure and sterile milk; and yet the death-rate of children under five years of age shows little or no reduction, and hand-fed babes die in summer now as they did twenty years ago.

We have thought that a short review of the situation as it presents itself might prove of interest if not of value, although we regret that we have no solution of the problem to offer.

First of all, chemists have been engaged upon new analyses of human milk, and find reason to estimate the percentage of albuminous matters at lower figures than have been given in previous formulæ. In the formulæ of König, Pfeiffer, and Leeds about 1 per cent. of albuminoids is given as the amount commonly present. Heubner, Forster, Hoffman, and Johannisen[1] find that the average amount is nearer 1 per cent. than 2 per cent.; Heubner places the figure at 1.05 per cent. and Hoffman at 1.07 per cent. Dr. A. V. Meigs, thirteen years ago, in a paper read before the Philadelphia County Medical Society,[2] contended that human milk never contained more than 1 per cent. of casein. In order therefore to make cow's milk correspond with human milk the proteids will need to be reduced two-thirds instead of one-half, as was the former custom. Wroblewski[3] has studied the nature of the casein of human milk as compared with that of cow's milk and finds that the former contains less carbon, nitrogen, and phosphorus than the latter and more hydrogen and sulphur. That the caseins of the two fluids never behaved alike has long been known, and the failure to sufficiently recognize this fact may account for some of the unsuccessful attempts in infant-feeding attending the substitution of cow's milk for human milk.

Biedert believes that the less digestible casein present in cow's milk constitutes a more favorable medium for bacteria to flourish in. Heubner,[4] however, has not been able to find in the feces of healthy children fed on cow's milk a greater quantity of undigested casein, though he has found a greater amount of other nitrogenous matters.

The importance of milk as a factor in the causation of digestive disorders in the infant has attracted the attention of many medical men, and the literature on the subject is quite voluminous. According to Krisowski,[5] of 1000 breast-fed infants only 7 die from digestive disorders, while of 1000 fed on cow's milk 67 perish from such diseases. Although the chances for living are very poor for the hand-fed babe, the mortality of the first year of life is extremely high for all infants. Eröss[6] finds that 44.8 per cent. of all children that die in the first month

[1] Jahrbuch f. Kinderheilkunde, 1895, vol. xl.

[2] Transactions of the Philadelphia County Medical Society, vol. iv, 1881–82.

[3] Mittheilungen aus d. klin. u. med. Inst. d. Schweiz, vol. ii, Heft 6.

[4] Berliner klinische Wochenschrift, 1894, No. 37.

[5] Deutsche Vierteljahrschrift f. öffentliche Gesundheitspflege, xxvi, 1894.

[6] Zeitschrift f. Hygiene, B. xix, Heft 3.

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of life, die before they are a week old; that 25 per cent. of the first month's mortality occurs on the first day of life, and at least 10 per cent. of the deaths of the first year happen within a month after birth. While noting these facts we must not ignore causes other than those relating to nutrition that affect infants fatally. The children of the poor have a much higher death-rate than the children of the rich. The impure air of closely crowded rooms may affect injuriously a young infant's health as much as improper food. According to Fischl, Epstein, and Eröss, septic infection through the navel is responsible for many of the deaths in the newly born.[1] In such facts as these may be found one of the reasons why improvement of the milk-supply has not as yet been followed by any considerable lowering of the death-rate.

Neumann,[2] in his own clinic, finds that the children suffer equally from digestive troubles whether they are fed on milk direct from the cow, so-called country milk, or milk that has passed through the hands of several dealers and is retailed over the counter. His patients are derived chiefly from the poorer classes, and therefore the food is not the only disease-producing factor.

To the very long list of substitutes for human milk there have recently been added several modifications of cow's milk, considered of value by their introducers. Among these is the "Fett-milch" of Gaertner.[3] This retains all the cream, the milk being first diluted with an equal bulk of water and the mixture being placed in a specially constructed separator, which allows one-half of the proteids to pass off with the skim-milk. Only a slight addition of sugar is needed to bring the product up to the required standard. Kehrer, on the other hand, uses a milk-serum obtained by the rennet-ferment, and he claims that in this process the digestible proteids alone are retained. Cream is then added to supply the amount of fat needed. Hempel,[4] in order to avoid the use of cow-milk casein, adds egg-albumin to a mixture of cream, milk-sugar, and water, and claims good results from this "egg-albumin milk." Many authorities prefer skim-milk, with cream added, to the whole milk; and as skim-milk, in the larger dairy-establishments at least, is obtained by means of a centrifugal separator, the product is freed of the dirt that it usually contains after milking.

Much has been said for and against the theory of the infectiousness of milk from tuberculous cows. Very few investigators have ever been able to find the bacilli of tuberculosis in the milk of cows not suffering from disease of the udders. An investigation undertaken by Dr. H. C. Ernst for the Massachusetts Society for Promoting Agriculture, and extending over a period of two years, conclusively showed that cows whose udders were unaffected, yet who were suffering from tuberculosis in other organs, yielded milk in which tubercle-bacilli were found; and such milk when fed to healthy calves rendered them tuberculous. Of 36 cows under examination 12 produced milk in which tubercle-bacilli were detected on one or more occasions, and of 21 healthy calves fed on the milk of these cows 8 became affected with tuberculosis.

When we consider that according to Peters[1] 26 per cent. of 165 herds examined in seventeen North American States were found tuberculous, and that the statistics of German abattoirs reveal the fact that from 10 per cent. to 15 per cent. of all the cattle slaughtered are found to be tuberculous, the danger of infection from the use of milk cannot be overestimated. The laws that have been enacted in several States looking toward the destruction of tuberculous cattle cannot in our estimation be too rigidly enforced, if the results reached by Ernst are at all worthy of acceptance. The experiments themselves are of such a simple nature that the results ought to be speedily confirmed or corrected by other authorities.

Another question that has been the subject of much discussion is that of milk-sterilization. If milk is fatal to young infants because of the bacteria that find in it a favorable soil for development, the destruction of these germs by heat ought to render the product innocuous and harmless. How to destroy the bacteria without injuring the value of the milk has been the problem.

Flügge[2] persists in the statement previously made by him that, in order to destroy the dangerous germs that are likely to infect milk and that cause peptonization, a higher degree of heat than the one used in Pasteurization is necessary, and that for ordinary

[1] To some of these conditions attention has been forcibly called by Crockett in THE MEDICAL NEWS of August 3, 1895, p. 119.

[2] Berliner klinische Wochenschrift, 1894, No. 20.

[3] Wiener medicinische Wochenschrift, 1894, No. 44.

[4] Deutsche medicinische Wochenschrift, 1894, No. 44.

[1] The Report of the Massachusetts Society for Promoting Agriculture, Boston, 1895.

[2] Zeitschrift f. Hygiene, 1894, vol. xvii, part 2.

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purposes cooking on a water-bath for ten minutes is as effective as any process of sterilization now in use. On the other hand, many authorities, including Baginsky, Troitsky, and Backhaus, still urge the use of the ordinary Soxhlet form of sterilization, and claim for it that if a perfectly sterile milk is not obtained thereby the procedure is far preferable to cooking and the product is at least much better than raw milk.

Baginsky[1] shows that milk is rendered harmful through three causes: First, from the non-pathogenic germs that set up various fermentations; second, from pathogenic organisms and their toxic products; and, third, from the germs that are present in the intestine of the child and that find in the ingested milk a suitable nidus for the generation of toxins. Sterilization can only partially lessen the dangers from the first and second causes, but it cannot affect the third.

Auerbach[2] considers the application of steam at a temperature of 115° C. and under pressure for a few minutes as effective as any form of sterilization.

Backhaus[3] contends that the advantages of sterilized milk are greater when the milk is prepared in large establishments than when it is sterilized by the consumer; the liability of contamination by frequent handling is lessened and the chances are that the milk is in a fresher condition.

All writers are agreed upon the necessity of keeping the dairy strictly clean, of observing the rules of cleanliness in milking, and in the transportation of milk, cooling the milk immediately after it leaves the cow and keeping it cool until it can be sterilized. Of course, no amount of precaution on the part of those who prepare the fluid will be effective if the sterilized product is exposed in a filth-laden atmosphere by a careless or ignorant mother. Bottles containing just sufficient milk for one feeding are generally advised and are to be preferred to the preparation of milk in bulk.

In many European and a few American cities milk can be had prepared with great care and according to any formula; the dairies are under strict supervision, the milk is carefully guarded from contamination, is examined frequently by chemists and bacteriologists, and is treated according to scientific principles. In Göttingen, Germany, milk is commonly sold for five cents a quart; while carefully prepared "children's milk" can be had for ten cents a quart. Sterilized milk can be bought in Philadelphia, in separate bottles holding eight ounces each, for twenty cents a quart.

Private philanthropy has established "sterilized-milk depots" where good milk can be obtained in sterile and unsterile condition for less than cost. Some of these organizations have been called into existence simply to satisfy a desire for publicity and notoriety, and have met with deserved failure. In other cases lack of technical knowledge, together with business inexperience, have caused the attempt to be abandoned, but most often the expense has been too heavy, and the money that a charitable public was expected to contribute was not forthcoming.

Neumann, of Berlin, and others who have been working among the children of the poor hold that the municipality should take upon its own shoulders the maintenance of suitable dairies and supply the children of the poor with proper nourishment at cost, as it now furnishes its inhabitants with pure water and endeavors to keep the air pure. This is one step further in the line of recent legislation, both in Europe and America, tending to increase the responsibility of the State in preventing disease, and if an improper milk-supply causes the death of thousands of infants, why not endeavor to prevent this waste of child-life by turning dairyman and giving every one the opportunity to obtain the purest and safest milk possible? Such at least are the arguments of those who favor State control. Paris has in connection with one of its municipal crêches a dairy controlled by the municipality, and children's hospitals and foundling-institutions have been urged by various writers to manage their own dairies. France is very desirous of increasing her population, and is endeavoring to do so by preventing waste. Other countries have not yet reached the point where the births per 1000 are less than the deaths, and therefore are not yet so much concerned about the 25 per cent. mortality of yearlings.

If the mammary gland of the human female is becoming atrophied, and infants do not thrive on cow's milk, no matter how carefully prepared or modified, might it not be well to consider what can be done to furnish all infants with their proper food, namely, human milk. If the child can be fed at the breast during the first year of its life the chances are ten to one that it will live be-

[1] Berliner klinische Wochenschrift, 1894, No. 43.
[2] Therapeutische Monatshefte, vol. xix, No. 1.
[3] Berliner klinische Wochenschrift, 1895, No. 26.

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yond its fifth year, and that period past, the expectation of life is a pretty good one. Would it not therefore be well for medical men to direct their energies toward bettering or rather increasing the number of human milkers instead of looking for substitutes. If physical reasons prevent a woman from giving suck to her own child, the causes and the means to overcome the obstacles ought to be discoverable.

If, as in many cases, personal convenience is at the root of the trouble, then surely society should be taught its duty, and public opinion be so educated that it will consider it a disgrace and a crime for a woman to refuse to nurse her offspring when she is capable of doing so.

Not only is such an act an unwarranted cruelty inflicted on the infant, but in a large percentage of the cases it is as fatal to the child's life as if it were disposed of in some fouler way. The mother who, because of poverty, abandons her offspring, is sent to the work-house, and the child is taken from her. Is it less culpable for a mother to refuse her infant its proper food when that food is at hand?

If the time and talent now expended in endeavoring to obtain a pure supply of cow's milk were directed to this other question, and the subject freely discussed in the lay press as well as the medical journals, we would have a lessened infant death-rate and the problem "how and what to feed the baby" would not excite so much attention as it now does.

## EDITORIAL COMMENTS.

***Medical Education in the United States.***—The last ten years have shown no diminution in the attendance at our large medical schools, notwithstanding the fact that entrance-examinations are more rigid, that the course has been lengthened in most cases two years, and that the State examinations make the requirements for the practice of medicine more severe.

In some of the schools the total attendance for the last five years has exceeded that of the previous five years by 60 per cent. Dr. Reilly, in the *Journal of the American Medical Association* of January 12, 1895, places the increase in the attendance at 101 medical colleges at 22 per cent., for 1894-95, as compared with previous years.

In many of the announcements that have been issued this year, the adoption of the compulsory four-years' course is heralded. In Philadelphia the Medical Department of the University of Pennsylvania, Jefferson Medical College, and the Woman's Medical College are now four-year schools. The Baltimore Medical College, the College of Physicians and Surgeons of Baltimore, the Women's Medical College, and the Medical Department of the Johns Hopkins University also demand a four-years' course. The Georgetown and Columbian Universities of Washington and the Howard Medical College of the same city have likewise adopted the requirements of the Association of American Medical Colleges. This by no means exhausts the list of four-year schools. We have simply mentioned those that have been most readily accessible. Many Western colleges, as well as Yale and Harvard, are also in line. Only one school in New York State, viz., the Medical Department of Columbia College, has a compulsory four-years' course.

The New York law requires three full years' study, the Attorney-General ruling that this means thirty-six months; yet only three courses of lectures are necessary, so that a student may study with a preceptor eighteen months of the thirty-six and attend college the other eighteen, or even spend less time at an accredited school. The wording in some of the recently issued announcements is rather ambiguous. In accordance with a resolution adopted June 7, 1894, by the Association of American Medical Colleges, attendance upon *four* full courses of instruction, of not less than six months' duration each, will be required of all who intend to graduate in 1899 or thereafter.

Thus in the catalogue of the Western Pennsylvania Medical College, among the requirements for graduation (p. 15), it is stated that the candidate for the doctorate "must have studied medicine for four consecutive years and have taken *three* full courses of lectures." And on p. 14, at the top of the page, it is stated that the time of study required is four years, including *four* full winter terms of lectures. In this college matriculates of 1895 can graduate in 1898.

The Colorado School of Medicine, on page 10 of its announcement, says: "Hitherto the course has been of three years' duration; but students who take their first course of lectures in 1895, or thereafter, must attend four full courses of lectures, no two of which can be taken in the same year;" and on page 25, "all students who enter college on and after September, 1895, must have attended *four* full courses of lectures before they can become candidates for graduation." There is no mistaking the meaning here. The wording of the resolution of the Association of American Colleges would lead one to infer that the four-years' course was compulsory only for those who intended to graduate in 1899, and that those who matriculated in September of this year could graduate in 1898. The greater number of colleges have interpreted this as coming into force this year, and are therefore four-year schools from September, 1895.

The advances along the line of medical education in this country in the past ten years have been truly great, but there is still room for much-needed improvement. First of all must come the abolition of State lines. We must have uniform requirements for admission, uniform requirements for graduation, and uniform laws for registration. The right to practise in one State should carry with it a right to practise in all States. Only then will the American medical diploma have a worthy meaning for our *confrères* abroad. The licence to practise medicine should be a Federal licence, granted by duly appointed Federal examiners; and all colleges should be made to act in conformity with rules established by them.

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***The Index Medicus.***—We desire to call attention to the communication of Dr. John S. Billings, one of the editors of the *Index Medicus* from its foundation, in another part of this issue of the NEWS. As will be seen, the number of subscriptions already reaches 48, and it should be an exceedingly easy matter to make up the guarantee-number of 200. If every medical body in this country with a membership of 25 or more would make itself responsible for one subscription the requisite number would soon be reached. Nor would it be too much to expect all of the medical colleges to do likewise. The question of the continuance of the *Index* is such a vital one, and the needs for its effectuation relatively so insignificant, that it would simply be disgraceful if the present effort should fail. The response to this final appeal should be immediate and liberal.

As to periodicity of appearance of the revised *Index* we think a monthly, as heretofore, would be preferred by most medical literary workers, but a quarterly would probably entail less labor upon the editors and likewise less cost for publication.

***The Use of the Clinical Material of the Municipal Hospital for Teaching.***—It would be a decided advantage to the medical students of Philadelphia if the clinical material of the Municipal Hospital for contagious diseases was in some way utilized for their instruction. Comparatively few of those who graduate in medicine have the opportunity, as students, to see cases of the exanthemata, measles, varicella, scarlatina, smallpox, and yet when called upon they are expected to recognize such diseases at once, and are often censured for delay or for mistaking them for other maladies.

The great danger to the community from professional ignorance on this subject must be obvious, and the early recognition by the medical attendant of a case of variola or scarlet fever may be the means of preventing a serious epidemic. Under proper precautions it seems to us that members of the graduating classes of the various medical schools could be admitted in small groups to the wards of the hospital and there be shown a few typical cases. The knowledge thus obtained cannot be offset by any didactic teaching, and cannot fail to leave a lasting impression.

***Collection of City Garbage.***—While there has been a decided improvement of late in the manner of collecting city garbage, owing to the introduction of closed iron carts, yet, the placing of garbage in all sorts of boxes and small buckets on the sidewalks of our city, when the passerby must inhale the odors that such garbage emits, is an evil that ought to be remedied. Often the receptacles are overturned and the contents are thrown into the street, where they lie until cleaning-day. A garbage-decorated sidewalk may have some attraction for the artist, especially at this season of the year, when the coloring is quite varied and rich; but the sanitarian and the ordinary individual would be much better satisfied if the mess were kept covered, out of sight, and out of smell, although not out of mind.

A move in the right direction is the use of public garbage-cans. The lids should be so attached that they cannot be lost, and regular disinfection would probably greatly lessen the offensiveness of the odors arising from decomposing material.

***Progress in Medical Education*** is urged, so far as relates to the Harvard Medical School, by President Eliot, the specific suggestions consisting: first, in the requirement of a degree in arts, science, or letters as an entrance-condition; this requirement to become operative in the year 1900. He also urges the shortening of the college-course to three years. The second change he would advise is the establishing of elective courses in medicine, so that the amplitude of instruction would be such that to take all the possible courses supplied by the faculty a single student would require eight, twelve, or twenty years. The third thing desirable for the Harvard school is a hospital of its own, in order that teachers may have clinical opportunities. We sincerely trust that all the suggestions may be realized, as they are beyond question in the interests of genuine progress.

***Orthographic Ignorance, etc.***—Our attention has been called to the fact that in the list of words taken from the papers of applicants for the licence to practise medicine and examined recently in Pennsylvania appear the spellings "draft" and "woolen." The list given was furnished by one of the examiners, and these two words were inadvertently permitted to remain, although they have the sanction of the best authority and are preferred by THE MEDICAL NEWS itself. In this connection we would also call attention to the letter on "Preliminary Examinations in Medical Colleges," on another page, from an intelligent graduate of 1895, who points out how some of the mistakes in spelling may have occurred, and who also places the blame for some of the failures where it properly belongs.

# CORRESPONDENCE.

## LONDON LETTER.

*The Meeting of the British Medical Association.*

THE annual meeting of the British Medical Association, which was brought to a close last week, was the largest gathering of that body ever held. The total attendance was not much less than three-thousand, including some two-hundred foreign visitors. This number, respectable as it is, fell considerably short of the expectations of the Executive Committee, who had hoped that at least five-thousand or six-thousand members would have taken the opportunity of combining the *utile* of scientific edification with the *dulce* of entertainments and festivities such as London offers in the season. As it was, the meeting was much larger than the average.

The Association has now thrice held its annual meeting in London—first in 1862, when it numbered only 1500; then in 1873, when its membership had grown to 5400; and now in the present year of grace, when it is 16,000. In its earlier days the Association was for a considerable time on the verge of bankruptcy; now it has assets to the amount of £60,000 ($300,000) beyond liabilities, and an income from its *Journal* of nearly £5000 ($25,000), which, with better management, might easily be doubled. Even in 1873 it was a very unimportant body, with little influence in the profession and none at all in the nation; now through its *Journal* it speaks with a voice that makes itself heard even amid the din of political battle, and through its Parliamentary

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Bill Committee it can impress its views on legislators and governments.

By the unanimous testimony of all who were present the meeting was, both from the scientific and from the social point of view, a distinct success. The gathering was not thrilled by the announcement of any discovery likely to mark an epoch in the history of the healing art, but there were some good discussions, and on the whole the scientific work was, in Bacon's words, "frugiferous," as well as "luciferous." The general addresses were below the average of such discourses. That of the President, Sir Russell Reynolds, was a homily *de omnibus rebus et quibusdam aliis*, atrophic in thought, anemic in expression, loose-jointed in structure, and inaudible in delivery. The "Address in Medicine" (by Sir William Broadbent, the "well-beloved physician" of the Rothschilds and other leaders in Israel) was a mixture of second-hand erudition and first-hand twaddle. The "Address in Surgery" was delivered by Mr. Jonathan Hutchinson, who *more suo* was didactic. He gave an instructive account of the difficulties that ovariectomy and lithotomy had to encounter in gaining a footing in London. Perhaps the most notable part of the address, however, was Mr. Hutchinson's uncompromising declaration that "no one ought now to die of cancer of the tongue, for nothing except neglect of the early stage can bring about such a result." Yet thirty or forty years ago so bold and so skilful a surgeon as James Syme, having had three fatal results in succession after excision of the tongue for carcinoma, was so disheartened that he said he would never attempt the operation again.

In the section of medicine, the President, Dr. Pavy, took for the subject of his opening address "Microbes, Toxins, and Immunity;" he is something of an old fogy, and, having nothing in particular to say, he said it not ungracefully. The section in surgery was opened with a good address on "The Surgery of War," by Sir William MacCormac, whose scalpel has, under the auspices of the Red Cross Society, flashed on many a battlefield. He dealt with the wounds made by the new magazine-rifle bullet, which he does not, like some of our army-surgeons, "regard as a perfect weapon from a humanitarian point of view." In opposition to certain high authorities he holds that in the future wars will be bloodier than in the past. In connection with this matter, it may be mentioned that Surgeon-Colonel William Taylor, of the Army Medical Staff, who accompanied the Japanese army through all the operations of the recent war in the East, has sent in a report to the Government embodying the results of his observations in the field, particularly on this point of the injuries inflicted by the new bullets. The publication of this report is looked forward to with much interest by surgeons, but heaven only knows when it may see the light, for in government departments the period of literary gestation is often indefinitely protracted.

In his presidential address to the Section of Obstetric Medicine and Gynecology, Sir William Priestley (whom Sir William Fergusson once irreverently described as "a fumbler of aristocratic vaginæ") raised his voice against the promiscuous spaying and other surgical atrocities of which women have in recent years too often been the victims. The protest is a little belated, as far as this country is concerned, for there has for some time past been a very distinct subsidence in the epidemic of operative fever that raged in hospitals for diseases of women. Gynecology at one time threatened to degenerate into a form of sport; operators "bluffed" against each other with statistics; they "compiled" their "centuries" as Grace does in the cricket-field, and they strove to break the record of competitors. Owing partly to the force of professional opinion and partly to the recent obscuration of one or two stars of the first magnitude in the gynecologic firmament, this form of sport is less popular than it was a few years ago.

Mr. Ernest Hart, the President of the Public Health Section, in his opening address, cursed the Indian Government for its backslidings in the matter of sanitation with a fervor and a tropical luxuriance of invective that St. Ernulphus might have envied. His theory of cholera is delightfully simple; it is all the fault of a fossilized officialdom that cannot or will not see that the one thing necessary to keep it off is boiled water. The true hygienic palladium is the tea-kettle. This easy means of sanitary salvation Mr. Hart preaches with what Indian officials doubtless consider "damnable iteration," and his vigorously blown trumpet can hardly fail to do good by waking the slumberous authorities to a sense of their responsibilities, not only to India and to Great Britain, but to the nations of the earth.

As to the work of the sections, only a few salient points need be touched on here. The most important discussion was that on serum-theurapeutics in the Section of Pharmacology and Therapeutics. With one exception, all the speakers bore testimony to the great value of the antitoxin-treatment in diphtheria. The one hostile witness, Dr. William Gayton, was, however, an important one, by reason of his position as Medical Superintendent of the Northwestern Fever Hospital, London, where he has had an exceptionally large experience of the disease. He drew an elaborate statistical comparison between the results of treatment in diphtheria-cases in the hospital under his charge during the antitoxin and pre-antitoxin periods, respectively, and he summed up his experience and that of his colleagues as follows: "Those cases that under the old treatment would probably have died were still fatal under the new. Those which might get better recovered in about the same proportion, whilst the mild cases improved no more rapidly—indeed, rather the contrary, considering the frequency of the incidence of rashes, than those without it."

There was an animated debate on the same subject in the Section of Medicine. Here, again, there was a practically unanimous chorus of praise of the new remedy, the one dissonant note coming from Mr. Lennox Browne, who has recently found himself irresistibly impelled by his scientific conscience to publish a book banning the antitoxin, just as he was led by the same internal monitor, soon after Koch's deliverance, to issue a volume blessing tuberculin.

Another important communication was presented to the Section of Medicine by Professor E. Maragliano, of Genoa, who reported the results of a clinical trial of an "antituberculous serum" of his own manufacture. This serum he obtains from dogs, asses, and horses, "by methods different from those hitherto used, discarding absolutely cultures of living bacilli and employing exclusively the highly toxic principles extracted there-

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from." This serum he has used in 82 cases of pulmonary tuberculosis of varying degrees of severity. Of these, 61 were more or less benefited, and all of them in which the disease was not too far advanced were either cured or were said to be on the high road of recovery. The serum is administered by hypodermic injection. In apyretic cases it is given in doses of 1 cubic centimeter on alternate days for ten days; then a similar quantity is given once daily for ten days; and, finally, twice daily for a like period. In markedly febrile cases a dose of 10 cubic centimeters is administered at once; then after three days, if there be no recurrence of pyrexia, a dose of from 1 to 2 cubic centimeters is given daily. If, on the other hand, the temperature rises again, a second dose of 10 cubic centimeters is administered a week after the first injection. Maragliano emphatically declared that the injections are never injurious, and he claims that they do good even in the gravest cases, neutralizing the effects of tuberculous infection. The improvement generally shows itself within a fortnight of the beginning of treatment, but sometimes it is not visible for a couple of months. Even when the disease appears to be definitely checked the injections should be continued for at least a month longer, and, by way of precaution, it will be well to inject a dose of 1 cubic centimeter weekly for at least a year after all symptoms have ceased. Maragliano's paper has made a great sensation abroad, especially in his native Italy, but the enthusiasm that it excited here was of a distinctly mild type; familiarity with "cures" for tuberculosis has bred something like contempt of them.

In the Section of Ophthalmology, Mr. T. H. Bickerton, of Liverpool, made a vigorous attack on the Board of Trade for its supineness in regard to the eyesight of seamen. A solid body of evidence was placed before the officials not long ago, pointing strongly to the necessity for greater strictness in testing the vision of the men who go down to the sea in ships, particularly in respect to color-blindness, but nothing has come of it. It is the instinct of our "Circumlocution Offices" to meet such appeals with evasion; meanwhile mysterious collisions occur, like that between the "Elbe" and the "Crathie," which are in all human probability due to defective eyesight in some lookout-man, but which the Board of Trade apparently regards as "visitations of God." The Section passed a resolution "that effect should be given by the Board of Trade to the recommendation contained in the report of the Royal Society," but it is safe to predict that till some royal or official personage is drowned nothing will be done.

The Section of Ethics was a new departure, and it is doubtful whether it has fully justified its existence. Various questions relating to the honor and dignity of the medical profession were discussed, a high moral tone was maintained, and the most edifying sentiments were expressed. It is a pity, however, that men of real authority in the profession were conspicuous by their absence from the meetings of this section, and that the business was left in the hands of a small caucus of busybodies, whose only claim to notoriety is their fussiness and their hypersensitive regard for the commercial interests of the general practitioner. They mean well, but they make the profession, of whose conscience they have constituted themselves the keepers, ridiculous in the eyes of the public.

The meeting, as a whole, was well organized, but the subdivision of the work into fifteen sections led to distinct weakness in several of them; indeed, a good deal of scientific sweetness was, owing to this cause, wasted on the desert air. The multiplicity of sections was doubtless intended as a sop to the Cerberus of specialism; it afforded a convenient means of satisfying the exactions of eminent 'ologists of one kind or another who would otherwise have played the part of Achilles sulking in his tent.

At the general meeting, perhaps, the most noteworthy incident was the reappearance of Mr. Lawson Tait, who, as far as public performances are concerned, has been, as the actors say, "resting for some time." He came forward as the champion of the general practitioner against the dreaded rivalry of the registered midwife. The discussion on this subject was conducted at a very high temperature, which reached its maximum when Dr. Murdoch Cameron, of Glasgow, significantly tapping his breeches-pocket, plainly told the opponents of the legislation for midwives that the be-all and the end-all of the agitation was the question of pounds, shillings, and pence. The antimidwife faction, however, was largely in the majority, and by their votes the British Medical Association stands committed to a selfish and discreditable policy worthy only of a body of petty tradesmen.

Another matter brought forward for discussion was a proposal to enlarge the scope of the Association so as to enable it to take an active part in the suppression of quackery and in the protection of the interests of the profession. There are practical difficulties in the way of such a development, and the ruling powers replied to the advocates of a new order of things with a simple *non possumus*. There is, however, a growing feeling among the members that the funds of the Association, instead of being hoarded up or sunk in bricks and mortar, might be more usefully applied in defending them against official tyranny, blackmailing, "sweating" by clubs and benefit-societies, and unfair and unlicensed competition, and in providing them with a pension in their old age. Whether, even if the Association managed to transform itself into such a mixture of grandmother and guardian angel, it would succeed in satisfying its members is decidedly open to doubt, but it is pretty clear that it will have to do something more for them than it does at present.

In its social aspects the meeting was a great success, though the brilliancy of the festivities was somewhat marred by the coincidence of the Geographical Congress. The annual dinner, which is the chief event of the week from the picnicking point of view, went off very well; the speech of the evening was made by Dr. W. W. Keen, who proved that he might have won fame as a humorist if he had cultivated the art instead of surgery. The absence from the dinner of men of light and leading in the political, literary, and artistic world, and the fact that no special courtesy was shown the Association either by royalty or by the city of London, gave rise to a good deal of comment. The city pleads poverty, and royal personages may not have been approached in the right manner, and, in point of fact, the Executive Committee was distinctly weak as far as social influence was concerned. Perhaps, however, the lack of external adornment is not altogether to be

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deplored, as the success of the meeting shows that the medical profession can, as Pitt said literature should do, "take care of itself."

## A CASE OF "HOSPITALISM."

*To the Editor of* THE MEDICAL NEWS,

SIR: Will you kindly give your ideas on the question that has been raised among the medical fraternity of our city as to the professional standing of the gentleman referred to in the accompanying advertisements, taken from this evening's edition of two of our daily evening newspapers? This same physician, whom we shall style "Dr. X.," is the possessor of a diploma signed by the faculty of the Medical Department of the University of Pennsylvania, and is, also, the proprietor of a drug-store, in each window of which one may read the following question addressed in large type to the casual passer-by: "ARE YOU SICK? Will prescribe and furnish you with medicine for one-half dollar." A similar advertisement appears also in the newspapers referred to. To continue the statement of his peculiar practices, he openly and freely consults with homeopaths, calling upon the members of the regular school (who may be willing to assist him) in cases of surgery, in which his extremely limited knowledge and skill compel him to turn for the aid that has thus far always been tendered him, although the very medical society to which these men owe allegiance not many years ago refused to admit their consultant into its membership on the ground of his "irregularities" in the practice of his profession! That I should be compelled to seek an expression of your views on such a question as this may seem at first blush a very needless waste of good ink, as he who runs may read this man's title clearly, and may well think me mentally deficient when seeming thus to question my own judgment, which pronounces this "Dr. X." the veriest quack who plies his wares upon the public streets! And yet, if the majority rules, we, who are in the minority on this question are sadly deceiving ourselves, and are making a most unnecessary struggle to uphold the ethics of our profession, which, we maintain, forbids us from all association with any whose methods are not those of the professional gentleman, and whose instincts are such as to degrade the professional conscience of all who may be willing to affiliate with him.

A new hospital has been recently opened in our city, and in the selection of the staff of physicians the Board of Managers determined upon "Dr. X." as one of those who should be requested to give their services gratuitously to the hospital for a term of two months. In doing this they were well aware that they would be arraying the members of the profession against each other, from a canvass previously made upon the question as to whether the members of the profession would refuse to act were "Dr. X." selected for the place; but as they found a majority who were willing to prostitute themselves to the wishes of the Board for the sake of the notoriety to be gained by an official connection with the new institution, they were willing to force the issue, even asserting their determination to break down every barrier which the Code has erected against just such practices as this, and even presumed to call in question the motives actuating us in our refusal to unite with them in accomplishing their impossible task.

At the last meeting of the ——— County Medical Society I made a special presentation of the position which has been taken in this matter by the physicians of our city, requesting the Society at that time to take official action restraining those who had openly declared their intention of so doing from serving in conjunction with "Dr. X." upon the hospital-staff. A refusal to act upon this point, I claimed, would be regarded by these physicians as a tacit admission on the part of the Society of their right to act in open defiance of the Code, and would be a direct attack upon the life of our organiztion which each member had solemnly pledged himself to maintain. *The resolution to this effect was tabled by an overwhelming vote.* What has been the result? A number of physicians whose standing in the State Medical Society is unquestioned, one of them until recently a member of its Judicial Council, are arrayed against three members of equally unquestioned integrity on a question of ethics, as to whether association with a quack is in consonance with the best and cleanest methods of medical practice. The public, unable to judge concerning the matter, sees only two conflicting parties of the medical body, and casts its vote in favor of the one that supports a public hospital, while it condemns the few whose ideas of ethical procedure in such matters are not regulated by an appeal to selfish interest, but govenred, as they think, by the plain directions of the Code of Ethics of the American Medical Association.

But the hospital has already been opened for the admission of patients. "Dr. A.," who serves first as surgeon thereto, and who said to me that he should not be obliged to have any intercourse with "Dr. X." in his official capacity, figures in this evening's paper as having performed a piece of minor surgery at the new hospital, assisted by the very man whom prior to his going on duty he intended to ignore. "Dr. B.," like "Dr. A.," a member of our County Medical Society, and who has also taken the obligation in a "solemn manner" to "loyally support the Code of Ethics of the American Medical Association," eases his conscience of the burden by saying: "I am a specialist. Why should I refuse to serve, when my duties do not bring me into any association with 'Dr. X.?'" And yet, in a case requiring the oculist's special skill, will he refuse to meet "Dr. X." in consultation when called upon by the latter from the medical ward of the hospital? Why this necessity of "having nothing to do with Dr. X." if he be a man professionally qualified for their association, which is asserted by them at one moment and disclaimed in the strongest terms the next! In their endeavors "to beat the devil about the stump" do they not see in what dilemma they must bring themselves in the end?

Let me conclude this letter by quoting a local item from an evening paper headed "Homeopathic Association Meeting. At the regular quarterly meeting of the ——— County Homeopathic Association held yesterday . . . . in attendance were ——," and "Dr. X.'s" name heads the list of members present! Now, well may these gentlemen feel a trifle discomfitted who have declared themselves in full accord with the Code of Ethics in associating with a self-declared homeopath upon the staff of the hospital. They have hitherto been loud in their declaration that "Dr. X." is a reputable practitioner, the holder of a diploma from the

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University of Pennsylvania, and that we in the feeble minority ought not to refuse to meet him professionally. Will they continue this positive attitude now that the mask has been thrown aside and the man stands revealed, free from all disguise? There are two vacancies remaining, practically three, on the staff of physicians and surgeons of the new hospital, occasioned by the refusal of the obstinate minority to sell their birthright for a mess of pottage. Why not fill them by electing two homeopaths? Surely they have been able to receive one of this Association of the Hahnemannian school, an "allopath" and an advertiser besides, and the addition of several others will not *seriously* interfere with their interpretation of what the Code expects of them in their dealings with their professional brothers. The vital question is, Will the State Society say nay?

"Yours truly,

—— ——."

[We have here such a clear and typical case of "Hospitalism" that we willingly give space to this rather lengthy communication. As we wish to deal only with principles, we have omitted names, details, and signatures. The brutal advertisements cut from the evening newspapers accompanied the letter. As to advice, we would bring the matter before the State Society, with accurate statements and records of the proceedings, and demand an official and authoritative decision as to the right of membership in the State Society of the members of the County Society who voted to table and who continue to associate with an advertising quack. There is no use of compromise or shilly-shallying. The issue would better be met at once. The longer the postponement, the more heroic and desperate must the therapeutics be.—EDITOR OF THE MEDICAL NEWS.]

## THE REVIVAL OF THE INDEX MEDICUS.

*To the Editor of* THE MEDICAL NEWS,

SIR: I enclose herewith a list of subscriptions to the *Index Medicus*, in accordance with the accompanying form which I have thus far received. This is exclusive of subscriptions sent to Mr. George S. Davis, the former publisher of the *Index Medicus*. When the physicians return from their summer vacation I hope that this list will be largely added to.

Very truly yours,
J. S. BILLINGS.

.....1895.

The undersigned hereby agrees to subscribe for one copy of the *Index Medicus* for year , at $25 per year, subject to the following conditions, viz.: When 200 subscriptions have been received by the editors the publication is to commence, and on notification of this I will send $25 to them. If, by December 1, 1895, the 200 subscriptions have not been obtained, the attempt to revive the publication will be abandoned.

Address, .....

.....

Address of editors:
DR. J. S. BILLINGS,
DR. ROBERT FLETCHER,
Library of the Surgeon-General's Office,
Washington, D. C.

*List of Subscriptions for the Index Medicus received by Dr. J. S. Billings to August 23, 1895.*

Albany, N. Y.: Dr. A. Vander Veer.

Baltimore, Md.: Dr. William Osler, Dr. H. A. Kelly, Dr. L. McLane Tiffany, Dr. I. E. Atkinson, Dr. W. S. Halsted, Dr. Henry M. Hurd.

Brooklyn, N. Y.: Medical Society, County of Kings.

Cincinnati, Ohio: Dr. P. S. Conner, Dr. F. Forchheimer, Cincinnati Hospital Library.

Denver, Col.: Colorado Medical Library Association.

Galveston, Texas: Dr. J. P. Johnson.

London, Eng.: Royal College of Surgeons, England.

New Orleans, La.: Dr. S. E. Chaillé, Dr. John B. Elliot, Dr. Edmond Souchon, Dr. Rudolph Matas.

New York City, N. Y.: Dr. G. T. Jackson, Dr. J. S. Thacher, Dr. John A. Fordyce.

Ogdensburg, N. Y.: St. Lawrence State Hospital.

Philadelphia, Pa.: Dr. J. C. Wilson, Dr. William Pepper, Dr. De Forest Willard, Dr. S. Weir Mitchell, Dr. George M. Gould, Dr. H. C. Wood.

Quincy, Ill.: Quincy Public Library.

Richmond, Va.: Dr. Hunter McGuire.

Rochester, N. Y.: Dr. John O. Roe.

Salt Lake City, Utah: Dr. S. H. Pinkerton.

Saranac Lake, N. Y.: Dr. E. L. Trudeau.

Washington, D. C.: Medical Department U. S. Army, 10 copies; Library Surgeon-General's Office, 2 copies; Medical Department U. S. Navy, 2 copies; U. S. Marine Hospital Service, 1 copy.

## PRELIMINARY EXAMINATIONS IN MEDICAL COLLEGES.

*To the Editor of* THE MEDICAL NEWS,

SIR: There appeared in THE MEDICAL NEWS of August 10, 1895, a list of some one-hundred-and-twenty or more words, furnished by a member of the examining-board representing the Medical Society of the State of Pennsylvania. One point made in the remarks preceding this array of ignorance was that the examinations as to literary ability were too lax upon entering the medical school. The point is well taken. All the medical colleges have raised their course from three to four years; and State examining-boards have arisen to confront the young graduate, requiring that he attain an average of 75 per cent. or be refused a right to practise medicine in this Commonwealth. These, together with the incidental difficulties and expenses, stand in the way of his final step from student into professional life. This is as it should be. But what about the requirements of his becoming a student of medicine, fully matriculated in a regular school? I have before me at the present moment the annual announcement of one of the oldest and highest-standing medical colleges of the United States. The printed condition for admission is that the applicant must show a teacher's certificate or a diploma from some recognized literary or scientific school, or a *satisfactory certificate* from the master of some academy or high school. Then, in italics, the hint is given: *To save time the applicant is advised to bring his certificate with him.* If, as is common, he lacks such certificate or diploma, he finds that it is easy to get an obliging friend to write a *satisfactory certificate*, and he enters the college which is to prepare him for fame and fortune. Of course, one would

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think that to be matriculated was a guarantee that one's common education was sufficient to permit graduation, but unfortunately this is not the case, and I have known more than one good, honest, hard-working student to come up for his final examination and be turned down because of poor penmanship and worse orthography. For instance, I knew a man who was to have graduated in 1894, who had an exceptional record with his quiz-masters and who made a fine average on all examinations except two, which were written, and on these he failed. One of those branches was surgery. The candidate went to the professor and asked for an oral examination, confident in his ability to answer any question on the subject that had been taught. The reply from the great professor was, "I will examine you again next year." What gross injustice! Here is a man who had expended his last dollar on his education, and was rejected in the end because of a deficiency the faculty should have ascertained in the beginning. Again, I have repeatedly had no mean scholar, while writing in the quiet of his own home and under no particular mental strain, turn to me and ask how to spell some very commonplace word. If this is so, how much greater must be the difficulty and the liability to lapses during the ordeal and mental strain of a public examination in all the important branches of medicine, and in this particular instance conducted for four days in rooms so hot and ill-ventilated that one member of the class fainted. Therefore, I think that for the bulk of the words misspelled we have abundant excuse other than ignorance, and for the remainder the student is scarcely to be held responsible. Rather place the blame where it should be—upon the heads of the trustees and professors of the medical colleges.

Respectfully, E. Z. B.

## NEWS ITEMS.

***A Centenarian Surgeon.***—At Pesaro, on the Adriatic, Dr. Giacomo Asiari attained his hundredth year on the 29th ult., and a brief biography of him has just been issued by a local colleague, Dr. Carlo Rigoni, with the twofold object of putting on record the career of an interesting professional man, and of establishing, subject to every available check, yet another *bonâ-fide* instance of a centenarian. Dr. Asiari was born at Forli on July 29, 1795, at noon. He studied at Forli, Faenza, Ravenna, and Florence, at which latter school, on June 17, 1821, he received his diploma in medicine and surgery. In 1823 he was called to Spoleto as "chirurgo primario" in the hospital there, and distinguished himself as an able and successful operator. His next appointment was in the University of Macerata, where he filled the post of "chirurgo primario" and reader in human anatomy. This readership he succeeded in getting transformed into a regular chair of anatomy, founding, indeed, a "scuola di anatomia," which was previously non-existent in that seat of learning. In 1829 he was called to Pesaro, once more as "chirurgo primario," and there his clinical duties and the calls of an ever-increasing *clientèle* kept him actively employed for the next thirty years, during which he took rank with the leading men of the city and province, like Count Cassi, Baldassini, Paoli, Petrucci, and Perticari. He attended, among other distinguished patients, Prince Charles Bonaparte when, in company with his brother Louis (afterward Napoleon III), the Prince in alighting from his carriage had gravely injured his knee. In the cholera year of 1855 he rendered invaluable service to the poorer victims of the disease, for which the Pesarese town council awarded him the gold medal of merit. Finally, in June, 1861, he went on the retired list, and the town council, in recognition of his merits as a surgeon and as a citizen, gave him a life pension equal in amount to the salary he drew in office. Dr. Asiari thereupon made over his "armamentarium chirurgicum" to the San Salvatore Hospital, and his fine medical library to the Bibliotheca Oliveriana. Since then he has enjoyed a serene and honored old age, his one complaint being the intercurrent neuritis, to which he has been subject for seventy-eight years.—*Lancet*, No. 3755.

***Meetings of Philadelphia Medical Societies:***

| | Meets. | Next meeting. |
|---|---|---|
| Academy of Surgery, | 1st Monday of month, Oct.—June. | Oct. 7 |
| College of Physicians, | 1st Wednesday of month, Sept.—June. | Sept. 4 |
| Section of Gynecology, | 3d Thursday of month, Oct.—June. | Oct. 17 |
| Section of Ophthalmology, | 3d Tuesday of month, Sept.—May. | Sept. 17 |
| Section of Orthopedic Surgery, | 3d Friday of month, Oct.—April. | Oct. 28 |
| Section of Otology, | 1st Tuesday of month, Oct.—May. | Oct. 1 |
| Section of Surgery, | 2d Friday of month, Oct.—May. | Oct. 11 |
| County Medical Society, | 2d and 4th Wednesdays of month, Sept.—June. | Sept. 11 |
| Neurological Society, | 4th Monday of month, Oct.—April. | Oct. 18 |
| Obstetrical Society, | 1st Thursday of month, Sept.—June. | Sept. 5 |
| Pathological Society, | 2d and 4th Thursdays of month, Sept.—June. | Sept. 12 |

***The New Mexico Territorial Board of Health*** at its meeting, June 19, 1895, adopted a resolution that examination will be required of all applicants to practice medicine in New Mexico who shall graduate after July 1, 1897, from any medical college not requiring preliminary examination of its matriculants, or equivalent evidence of satisfactory general education, and, for graduation, evidence of four years study of medicine and four terms of lectures occuring in four separate years. Meanwhile, the present standard of three years' study, three terms of lectures in three separate years, and preliminary examination of matriculants will be maintained toward all applicants who have graduated since July 1, 1890.

***A Medico-legal Congress*** will be held at or near New York City on September 4, 5, and 6, 1895. It will be open to all students of medical jurisprudence. Quite an imposing array of papers has already been promised.

***Dr. Frank Parsons Norbury*** has been elected to the Chair of Practice of Medicine and Clinical Medicine in the St. Louis College of Physicians and Surgeons.

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# THE MEDICAL NEWS.

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## ORIGINAL ARTICLES.

### NOTES ON EXAMINATION OF THE URINE.

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IN the New Orleans *Medical and Surgical Journal* for June, 1890, I published a first series of notes on examination of the urine. At that time, however, I was able to report only a very incomplete analysis of specimens sent to the laboratory between November 7, 1889, and January 1, 1890, because a satisfactory system of sending with the specimens a record of the most important clinical facts had only been put into practice between those dates. Since that time the system has been much improved, thanks to the co-operation of my confrères of the visiting staff, and I am now able to present a complete analysis of all the specimens examined. The clinical statements as to age and the day of the disease on which the examination was made are, of necessity, somewhat inexact, but not enough so to cause any considerable error in our conclusions, I believe, especially when large numbers of cases are considered. Indeed, the present number of cases, which includes those given in the first report, is so large that I offer these materials for thought, with some confidence in their usefulness. I have not refrained from making such comments as the figures suggest, but I would emphasize that these reflections have occurred when the notes were taken, at the laboratory-table.

A uniform method has been followed in examining all specimens. The urine is sent to the laboratory by 9 A.M., in screw-top preserving-jars, especially kept in the wards for this purpose. To the jars are tied manilla tags, bearing a brief synopsis of the clinical history. Immediately on receipt of the urine in the laboratory the reaction and specific gravity are taken, and the fluid is poured into a conical glass to settle for an hour or an hour-and-a-half before slides are made for microscopic examination. In the meantime qualitative tests are invariably made for albumin, for sugar, and for other substances, the presence of which in one way or another we are led to suspect.

The "ring-test" is always used in the examination for albumin, as I am convinced that when properly made it is the surest and most delicate. Albumin makes its appearance in the urine under many forms, and is often accompanied by other substances that either disguise or prevent its usual reactions. In acid urines, if we employ heat alone, we find many specimens in which we fail to obtain coagulation, and the test by boiling the upper portion of a long column of the fluid in a test-tube will lead us into error. The addition, too, of a mineral acid to these acid specimens is a delicate matter; frequently, if more than a trace of nitric acid be added, we fail by producing too high a degree of artificial acidity to obtain the reaction; while other specimens require to produce precipitation the addition of an amount of nitric acid that is surprising, and that would never be persevered in by an inexperienced person. Some acid specimens give a precipitate on the addition of nitric acid in the cold, while others will not, and the amount of albumin present has nothing to do with the result.

I have observed that if a color-reaction (usually reddish or purplish) be produced on the first addition of nitric acid, as a rule precipitation of the albumin is not obtained until continued addition of the acid restores an orange or yellow hue to the fluid. I am not speaking now, of course, of well-understood cases in which positive "greenness" on the part of the experimenter offers an easy explanation of the difficulties, but of instances in which even an experienced clinician is annoyed. Most of these difficulties are caused by the fact that a small amount of albumin can form with a small amount of acid or alkali a soluble acid or alkaline albumin, which is only to be broken up and precipitated by the addition of an excess of nitric acid. There is no doubt, however, that organic chemistry may still find here some profitable employment.

In making the "ring-test," if half an inch of acid be poured into the tube, and two or three times the amount of urine be carefully run down upon it, an exceedingly delicate ring of albumin can be perceived if the tube is held against a dark background with the light falling obliquely through it. When, however, but very little albumin is present, it may be some minutes before the cloudy ring becomes distinct. I believe the importance of this time-element has not been sufficiently insisted upon; indeed, none of these matters is discussed

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and dwelt upon in our textbooks with adequate force and clearness.[1]

A case that illustrates the importance of allowing time in making the ring-test has come under my observation while writing this paper. A specimen of urine of acid reaction and specific gravity 1013 was examined for albumin by the ring-test, boiling, and the picric-acid test. The latter tests were extremely doubtful, and I saw no ring on making the first. On microscopic examination I found a few hyaline casts, when I looked once more at my ring-test, and then, one-hour-and-a-half after having prepared it, found a distinct ring. On repeating the test and observing it constantly, I found that *four minutes* elapsed before I could be at all certain of the presence of the albuminous ring. Making the urine alkaline and then testing, nine minutes passed before I could be certain of the ring. The object of making the urine alkaline was to ascertain if a source of error that I mentioned in my first paper (1890) had perchance been present. As I pointed out at that time, the ring-test sometimes fails when the specimen to be tested is very acid, for then, apparently, the acidity at the junction of the urine and nitric acid may be sufficient to hold in solution a small amount of albumin; or, in other words, there may not exist anywhere between urine and acid exactly the degree of acidity requisite to the coagulation of the albumin; the degree is everywhere too high. If the urine be rendered alkaline and the precipitated mucus filtered off, this source of error is removed. Should the amount of mucus be moderate filtration is unnecessary; in a moment or two the cloud of mucus lifts; its lower border is marked by a sharp, fine, white line; below is a little clear zone of urine, and at its lower border, just above the junction of urine and acid, is seen the faint nebulous albuminous ring. Of this point also I have seen no mention in our text-books. These two precautions—time and the degree of acidity—being borne in mind, the ring-test merits every confidence; but when the trace of albumin is minute confirmation is (in the Hospital Laboratory) invariably sought by boiling, followed by the addition of a proper quantity of acid.

If albumin is found, 5 c.cm. of the urine are boiled until all the albumin is coagulated and then allowed to stand in a cylindrical graduate and settle for an hour or an hour-and-a-half, when the amount of *moist* albumin is read off and the percentage calculated. All the percentages given in the tables have been estimated in this way, a rapid method that answers every practical purpose and is as valuable for comparison as any other.

Omitting the 111 cases of 1889 the total number of specimens of urine examined was 2685. The number of re-examinations was 355. The number, omitting re-examinations, was 2330.

*White Men.* Of the 2330, there were specimens from 1288 white men. Of these 1288 specimens, 592, or 45+ per cent., contained albumin. Of the specimens (592) containing albumin, in 169 it was accounted for by contained pus or blood. There were then 592 containing albumin and 169 containing pus or blood; making 423 specimens from cases of presumably pure renal albuminuria, viz., 32+ per cent. of 1288 and 71+ per cent. of 592.

*White Women.* Of the 2330, there were specimens from 463 white women. Of these 463 specimens, 218, or 47+ per cent., contained albumin. Of the specimens (218) containing albumin, in 97 it was accounted for by contained pus or blood. There were then 218 containing albumin and 97 containing blood or pus; making 121 specimens from cases of presumably pure renal albuminuria, viz., 26+ per cent. of 463 and 55+ per cent. of 218.

*Negro Men.* Of the 2330, there were specimens from 470 negro men. Of these 470 specimens, 303, or 64+ per cent., contained albumin. Of the specimens (303) containing albumin, in 68 it was accounted for by contained pus or blood. There were then 303 containing albumin and 68 containing pus or blood; making 235 specimens from cases of presumably pure renal albuminuria, viz., 50 per cent. of 470 and 77+ per cent. of 303.

*Negro Women.* Of the 2330, there were specimens from 109 negro women. Of these 109 specimens, 68, or 62+ per cent., contained albumin. Of the specimens (68) containing albumin, in 28 it was accounted for by contained pus or blood. There were then 68 containing albumin and 28 containing pus or blood; making 40 specimens from cases of presumably pure renal albuminuria, viz., 36+ per cent. of 109 and 58+ per cent. of 68.

We note that the percentage of renal albuminuria is higher among the negro men (77 per cent.) than among the white men (71 per cent.) and among the negro women (58 per cent.) than among the white women (55 per cent.); and that the percentage of cystitis (pus and blood) is higher among the white women (45 per cent.) than among the

[1] Since writing the foregoing, Professor Long's Laboratory Manual of Elementary Chemical Physiology and Urine Analysis, Chicago, E. H. Colegrove & Co., 1894, has appeared, in which all of these are stated with admirable brevity and point. Professor Long notes (p. 191) the importance of the time-element in making the nitric-acid contact-test, but he falls into error when he advises "to set the tube aside for twelve hours, and then observe it." If the amount of albumin is small and the ring delicate, it will, even after the lapse of an hour or two, have disappeared by diffusion or resolution. The suggestion of Professor Long that nitric acid be well warmed before the urine is run down upon it is an excellent one, as by this means we are exempted from chance of error by the precipitation of urates; this error, however, is readily obviated by a little experience and accurate observation; but I cannot agree with Professor Long when he says (p. 193) that the formation of a ring of crystalline urea nitrate "is a very unusual reaction." In my experience it has proved rather common.

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white men (29 per cent.) and among the negro women (42 per cent.) than among the negro men (23 per cent.).

TABLE NO. 1.

Ages of 859 cases of renal albuminuria:

| | | Per cent. |
|---|---|---|
| From 5 to 10 years, | 5 cases | ½+ |
| 10 " 15 " | 84 " | 9+ |
| 25 " 30 " | 77 " | 8+ |
| 30 " 40 " | 146 " | 17+ |
| 40 " 50 " | 173 " | 20+ |
| 50 " 60 " | 162 " | 18+ |
| Over 60 " | 158 " | 18+ |
| Age not reported in | 54 " | 6+ |
| Total . . | 859 | |

TABLE NO. 2.

Number of times and percentage of occurrence of renal albuminuria at different ages in 1686 suspected cases:

| Total No. of cases. | Cases of renal albuminuria. | | Percentage. |
|---|---|---|---|
| 12. | From 5 to 10 years, | 4= | 33+ |
| 228. | " 10 " 15 " | 62= | 27+ |
| 225. | " 25 " 30 " | 61= | 27+ |
| 291. | " 30 " 40 " | 94= | 32+ |
| 343. | " 40 " 50 " | 135= | 39+ |
| 303. | " 50 " 60 " | 122= | 40+ |
| 257. | Over 60, " | 30= | 50+ |
| 27. | Age not reported, | 12= | 44+ |
| 1686 | | | |

Neither race nor sex seems to influence the age at which renal albuminuria most commonly occurs. The percentage rises abruptly at thirty years of age, and in men and women, whites and blacks, the majority of the cases occur during the thirty years from thirty to sixty. Table No. 1, therefore, is made to include the whole 819 cases of 1891–92, together with the forty cases of 1889. For similar reasons Table No. 3 is made to show the amount of albumin, the reaction, and the specific gravity in the whole number (859) of cases.

TABLE NO. 3.

Reaction and specific gravity of 859 cases of renal albuminuria:

| Amount of albumin (moist). | Number of specimens. | Reaction. | | | Specific gravity. | | |
|---|---|---|---|---|---|---|---|
| | | Neut. | Acid. | Alk. | Max. | Min. | Average. |
| Trace . . | 364 | 11 | 331 | 22 | 1031 | 1000 | 1013+ |
| 1– 5 p. ct. . | 132 | 2 | 124 | 6 | 1029 | 1001 | 1011+ |
| 6–25 p. ct. . | 244 | 4 | 230 | 10 | 1032 | 1002 | 1013+ |
| 26–50 p. ct. . | 67 | 1 | 59 | 7 | 1030 | 1004 | 1014+ |
| 50 p. ct. or over . . | 52 | 2 | 48 | 2 | 1034 | 1006 | 1015+ |
| | 859 | 20 | 792 | 47 | | | |

TABLE NO. 4.

Association of casts with various amounts of albumin in 859 specimens from cases of renal albuminuria:

| | | Percentages. | | | | |
|---|---|---|---|---|---|---|
| Variety of casts. | Trace. | 1 to 5. | 6 to 25. | 26 to 50. | 50 and over. | |
| Epithelial . | 5 | 1 | 7 | 1 | 1 | 15 |
| Granular . | 37 | 37 | 78 | 22 | 20 | 194 |
| Hyaline . | 126 | 55 | 104 | 31 | 29 | 345 |
| Waxy . . | 0 | 2 | 1 | 1 | 2 | 6 |
| Total . . | 168 | 95 | 190 | 55 | 52 | 560 |
| No casts . | 196 | 37 | 54 | 12 | 0 | 299 |
| Grand total | 364 | 132 | 244 | 67 | 52 | 859 |
| Percentage of occurrence of casts . | 46+ | 71+ | 77+ | 82+ | 100 | 65+ |

The average specific gravities corresponding to various amounts of albumin are interesting. With only a trace of albumin in the urine, the kidneys, it may be supposed, being but slightly affected, the specific gravity is about normal; when the amount of albumin increases to from 1 to 25 per cent., the kidneys being, presumably, more profoundly damaged, the specific gravity falls a little; but when the amount of albumin rises to from 25 per cent. to 50 per cent. or over, it, by its very presence, causes a decided rise in the specific gravity. In the fifty-two cases in which the albumin amounted to 50 per cent. or over the specific gravity was never less than 1006. A consideration of Table No. 3, however, and the fact that in 401 specimens of normal urine the specific gravity varied from 1001 to 1028, show conclusively how futile it is to hope for any indication of the presence or absence of albumin from the specific gravity of a specimen of urine.

In Table No. 4 an attempt is made to show the relation between the amount of albumin and the kind of casts found, the number of times per centum that casts were present with each amount of albumin being given. It must be carefully noted, however, that whenever granular and epithelial casts were found together, the kind is set down in the table as granular, and that when hyaline casts were found associated with other casts the kind is always set down as hyaline.

If we take it to be a general rule, and to this all experience inclines us, that disease of the kidney is to be feared only when (after repeated examinations) we find albumin associated with casts in the urine, then Table No. 4 furnishes two valuable indications. First, if not employing the microscope, we make a chemic examination, and a qualitative one only, and determine the presence of albumin, though it be but a trace, the chances are about equal; second, if unsatisfied, we proceed to determine the percentage of moist albumin, and find it to be about 1 per cent., the chances are in favor of renal disease; if between 1 and 50 per cent., the chances are more than 2 to 1; while when the percentage reaches or exceeds 50 per cent., we may feel almost certain that grave renal disease exists. Obvious causes,

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like the presence of pus or blood, are of course not taken into consideration.

TABLE 5.

Duration of the disease at the time of the examination, with the amount of albumin and the kind of associated casts in 819 cases of renal albuminuria.

| Duration of disease. | Albumin. | | | | | | Casts. | | | | | Percentages. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Trace. | 1 to 5 per cent. | 6 to 25 per cent. | 26 to 50 per cent. | Over 50 per cent. | Totals. | Epithelial. | Granular. | Hyaline. | Waxy. | Totals. | |
| Less than 1 mo. | 64 | 12 | 34 | 10 | 11 | 131 | 2 | 25 | 61 | 0 | 88 | 67+ |
| From 1 to 6 " | 150 | 55 | 101 | 31 | 28 | 365 | 7 | 89 | 147 | 4 | 247 | 67+ |
| 6 mo. to 1 yr. | 46 | 9 | 24 | 10 | 4 | 93 | 0 | 22 | 42 | 0 | 64 | 68+ |
| 1 to 2 years, | 21 | 7 | 19 | 1 | 5 | 53 | 1 | 12 | 23 | 1 | 37 | 69+ |
| 2 to 3 " | 17 | 3 | 10 | 1 | 0 | 31 | 1 | 5 | 9 | 1 | 16 | 51+ |
| 3 to 4 " | 12 | 2 | 10 | 2 | 0 | 26 | 1 | 10 | 8 | 0 | 19 | 73+ |
| 4 to 5 " | 4 | 3 | 0 | 1 | 0 | 8 | 0 | 2 | 4 | 0 | 6 | 75+ |
| Over 5 " | 4 | 4 | 2 | 0 | 0 | 10 | 0 | 3 | 4 | 0 | 7 | 70+ |
| Not reported, | 39 | 21 | 30 | 8 | 4 | 102 | 0 | 17 | 38 | 0 | 55 | |
| | 357 | 116 | 230 | 64 | 52 | 819 | 12 | 185 | 336 | 6 | 539 | 65+ |

In Table No. 5, it should be called to mind, the duration of the disease given rests solely upon the statements of the patients themselves and is therefore, of course, not absolutely reliable, especially in the case of hospital-patients like these. Nevertheless the number of cases considered is so large that I do not believe serious error has crept in, though the fall to 51 per cent. of casts associated with albumin in cases having a duration of between two and three years is unaccountable and suspicious. Only 819 cases are embraced in this table, as this information could not be had about the 40 cases of 1889.

Turning to the very interesting question of the symptoms associated with renal albuminuria (Table No. 6), I must confess that I do not think these were reported as the result of any careful study of the cases, and in so far they are untrustworthy, doubtless; but they have an interest as the most striking symptoms noted in what was probably an early, incomplete, and hurried examination of a large number of cases by a large number of practitioners of varying ability; *i. e.*, the average "first visit" of the average "busy practitioner."

TABLE NO. 6.

*Résumé* of symptoms reported at least fifty times, together with percentage of association of the symptom with casts:

| Symptoms. | Total cases. | Percentage. |
|---|---|---|
| Edema of extremities | 423 | 67+ |
| Anasarca | 227 | 73+ |
| Dyspnea | 212 | 72+ |
| Edema of face | 167 | 64+ |
| Headache | 141 | 61+ |
| Dizziness and dimness of vision | 79 | 63+ |
| Heart-lesion | 77 | 66+ |
| Scanty urine | 66 | 66+ |
| Frequent urination | 52 | 44+ |
| Anemia | 57 | 68+ |

Regarding only those symptoms, mentioned at least fifty times, it was found that anasarca, dyspnea, and anemia were most frequently associated with the presence of casts, while frequent micturition was far less often so associated. If then this table is fairly trustworthy, the limitations already noted being kept in mind, the presence of anemia, dyspnea, and anasarca should at once suggest the likelihood of true renal disease, while frequent urination should rather direct our attention to the genito-urinary apparatus. Of course, there is nothing surprising in this, but it is interesting to see it supported by actual figures and percentages.

Casts were found in 40 specimens (out of 2441 first examinations of 1889, 1890, 1891, and 1892) that contained no serum-albumin.

Thirty (30) of the 40 specimens were from white men; one (1) was from a white girl; seven (7) were from negro men; two (2) were from negro women.

The ages ranged from 8 to 80 years; the duration of the disease varied from three days to three years; the specific gravity from 1002 to 1035; the reaction was acid in 19, alkaline in 2, and unrecorded in 19; the casts were hyaline in 14 instances, granular in 4, epithelial in 1, and unrecorded in 21. The symptoms recorded were edema, headache, scanty urine, bronchitis, anemia, backache, frequent micturition, dimness of vision and dizziness, dyspnea, anasarca, emaciation, heart-lesion, pregnancy, diphtheria, and uremic convulsions. It is highly probable, of course, that albumin was escaping in some one of its many forms other than serum-albumin, but as the latter is the form almost invariably tested for by practitioners the occurrence in these cases of "casts without albumin," to the number of 1 to every 61 specimens examined is of interest and importance.

*Sugar.* Sugar was found in only 12 of the 2330 specimens, and was associated with albumin (from a trace to 5 per cent. moist) in only four. The reaction was acid in every instance and the specific gravity varied from 1022 to 1048. The ages of the patients ranged from 7 to 49 years; 10 were males and 2 females, while 10 were whites and 2 blacks.

TABLE 7.

Other abnormal or unusual constituents found in specimens free from albumin, casts, or sugar, in a grand total of 2441 first examinations of the urine.

The 2441 specimens were from

| | | | |
|---|---|---|---|
| Men | 1835 | Whites | 1831 |
| Women | 606 | Blacks | 610 |
| | 2441 | | 2441 |

| | Age. | | Not reported. | Sex. | | Race. | | Not reported. | Total. |
|---|---|---|---|---|---|---|---|---|---|
| | 5 to 20. | 21 and over. | | Males. | Females. | White. | Black. | | |
| Spermatozoa | 1 | 27 | 4 | 31 | 1 | 28 | 4 | 0 | 32 |
| Red blood-corpuscles | 3 | 82 | 31 | 86 | 30 | 86 | 30 | 0 | 116 |
| Urates | 6 | 55 | 7 | 53 | 15 | 46 | 19 | 3 | 68 |
| Uric acid | 7 | 64 | 10 | 58 | 23 | 63 | 18 | 0 | 81 |
| Calcium oxalate | 5 | 111 | 5 | 93 | 28 | 96 | 25 | 0 | 121 |
| Phosphates (triple) | 7 | 43 | 10 | 38 | 22 | 43 | 17 | 0 | 60 |

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Table No. 7 includes the 111 first examinations of 1889, as well as the 2330 of 1890-91-92, a total therefore of 2441.

Columns cannot be added, as these constituents were often found associated in the same specimen.

Concerning the urinary sediments, I have but a single note to make. The so-called dumb-bell crystals of calcium oxalate do not, I am convinced, exist. These forms are, in reality, all biconcave discs, of greater or less regularity and exactness of shape, and are connected by transition-forms of infinite variety with the classic octahedra. The various forms are depicted with great exactness on page 329 of Professor Long's recent work, save that in the supposed typical dumb-bells the fine contours defining a biconcave disc, as in the red blood-corpuscle seen in profile, can, I believe, be always made out by suitable illumination and exact observation. It is proper to note here that crystals of triple phosphate may often be found on making the microscopic examination in a urine having a (general) acid reaction for the following reason: The sediment that settles at the bottom of a conical glass, after the urine has been standing for an hour or so, is that portion always collected for microscopic examination. Now, while the upper portions of the urine still show a decidedly acid reaction, the extreme lower portion, the few drops at the conical bottom of the collecting vessel in which all the sediment is contained, may have become alkaline and be fairly loaded with crystals of triple phosphates. Some emphasis is to be laid upon this point, as the clinician is likely to look askance upon a report giving the reaction of the urine as acid, and yet mentioning crystals of triple phosphate as constituents of the microscopic sediment.

TABLE 8.

Symptoms (reported at least twenty times) occurring with unusual or abnormal constituents in specimens of urine free from albumin, casts, and sugar.

| | Spermatozoa. | Red blood-corpuscles. | Urates. | Uric acid. | Calcium oxalate. | Triple phosphates. | Totals. |
|---|---|---|---|---|---|---|---|
| Anemia | 2 | 6 | 4 | 5 | 8 | 2 | 27 |
| Anasarca | 1 | 8 | 11 | 4 | 10 | 3 | 37 |
| Backache | 3 | 8 | 5 | 11 | 14 | 3 | 44 |
| Dizziness and dimness of vision | 3 | 7 | 8 | 5 | 12 | 4 | 39 |
| Dyspnea | 2 | 11 | 9 | 4 | 19 | 9 | 54 |
| Headache | 7 | 15 | 13 | 14 | 33 | 11 | 93 |
| Heart-lesions | 0 | 3 | 5 | 5 | 6 | 2 | 21 |
| Edema of face | 3 | 10 | 6 | 3 | 9 | 4 | 35 |
| Edema of extremities | 13 | 39 | 18 | 23 | 58 | 23 | 174 |

Finally, as I have noted under Table No. 8, I found the average specific gravity of 401 specimens, in which the reaction was normal and nothing unusual or even noteworthy to be found, to be 1012+; *i.e.*, between 1012 and 1013. Müller (1840) gives the mean specific gravity as from 1015 to 1020; Draper (1858) as 1020; Carpenter (1864) cites Prout as giving 1020; Simon 1012; Roberts from 1001 to 1036; Kirke (1873) gives 1020; Herman (1878) from 1005 to 1030; Foster (1880) 1020; Landois and Stirling (1886) from 1015 to 1025; Yeo (1888) from 1015 to 1020. The morning urine is said by all to be the heaviest, but this was the urine furnished me in every instance. The lowest specific gravity found among the 401 specimens was 1001 and the highest 1828.

*Normal Specific Gravity.* The average specific gravity of 401 normal specimens was 1012+. The lowest was 1001; the highest 1028.

## TREATMENT OF LEUKOMAIN-POISONING.

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IN previous papers[1] I have shown that paraxanthin and other leukomains of the uric-acid group are etiologically related to true migraine and kindred diseases, such as migrainous epilepsy and migrainous gastric neurosis. For the etiology and symptomatology of these diseases the reader is referred to these papers, as it is my purpose in this communication to speak only of the treatment of these conditions.

The outline of treatment that I shall present is one in which I have learned to have much confidence and one that I am anxious to submit to the judgment of medical men everywhere, in order that I may the more quickly determine its value and its limitations.

*The medicinal treatment* is the important and indispensable part of the treatment and consists of two prescriptions, which are used simultaneously:

Take—Potassium permanganate . 20 grains.
Make 20 pills and coat with salol.[2]
One of these is to be taken three times a day one hour after meals.

Take—Sodium salicylate . . 2 drams.
Dry sodium phosphate . 4 "
Dry sodium sulphate . 10 " —Mix.
A teaspoonful, more or less, is to be taken in a glass of seltzer-water each morning.

The foregoing prescriptions can be given continuously for months at a time. In one case in which the treatment was eminently satisfactory I continued this treatment without a single day of interruption for four months. I am not sure that it is necessary to have the pills of potassium perman-

[1] THE MEDICAL NEWS, Phila., May 26 and October 3, 1894, and Transactions of the Association of American Physicians, vol. x, 1895.

[2] Mr. Bange, a pharmacist, uses the following formula for coating the pills with salol: Salol, 4 parts; shellac, 1 part; alcohol, 40 parts.

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ganate coated with salol, as I believe I have gotten the same good results with the uncoated pills. I have used the salol-coated pills on the theory that this coating would enable the potassium permanganate to pass through the stomach and be dissolved in the small intestine, and in this way act as an intestinal antiseptic. But the special purpose for which it is given is to neutralize poisonous leukomains circulating in the blood. (See previous papers.)

In the second prescription it is important to have pure salts of sodium. These salts will not be so unpalatable if taken in cold seltzer-water. The seltzer-water can be obtained in siphon and used as directed. It is not an important part of the treatment, and is used for the most part to make the "salts" more palatable. Water may therefore be substituted for the seltzer-water without, in any way, detracting from the efficacy of the treatment. In this prescription the quantities of the three sodium-salts may be changed to suit individual cases, the formula as given being the one that I almost invariably use, and I have rather preferred to vary the dose to suit individual cases than to rewrite the prescription with the quantities of the ingredients changed.

When there is considerable constipation it is necessary to give a heaping teaspoonful of the salts to produce the cathartic action which is necessary in the treatment of these cases. If a small dose of salts produces excessive catharsis, the dose may be diminished or the prescription rewritten with less of sodium sulphate and more of the phosphate. But I have often noted that the gouty diarrhea, which many of these patients have, is cured rather than exaggerated by these salts. The "salts" should be given every morning for a considerable period of time.

The relief that follows the treatment outlined is immediate. It is a common experience for patients not to have a single so-called "nerve-storm" after being put upon it. It will often accomplish remarkable results without the aid of any dietetic or hygienic treatment.

*The dietetic treatment* is very important and should always be adopted as an aid to the medicinal treatment. The diet to be observed is as follows: Fresh meat once a day, with fish, eggs, milk, fruit, and vegetables. I ordinarily direct the patient as to what he should not have, telling him to avoid beer, wine, meat-soup, and meat, except one piece of fresh meat at dinner. Apart from this he may have anything he wishes within the limits of his digestive capacity. Not infrequently the medicinal treatment already outlined very much widens the range of the digestive capacity of the patient, so that he can eat freely of many fruits and vegetables which previously he had learned to fear.

*The hygienic treatment* is also important in many cases and consists simply of a warm alkaline bath each morning and plenty of exercise in the open air. I usually direct the patient to take a warm alkaline bath as soon as he arises in the morning, and the bath should, when convenient, be followed by an alcohol rub. A handful of sodium bicarbonate and one of sodium chlorid thrown into an ordinary bath-tub of hot water will make the water sufficiently alkaline. The alkaline bath has not appeared to me to be necessary in the treatment of migrainous conditions, and it is not my routine to prescribe it under these conditions; but I have found it a very useful, if not a necessary, adjunct to the other treatment in certain so-called gouty conditions of the muscles and joints. A discussion of the manner in which the alkaline bath produces good results is not within the scope of this paper.

Exercise in the open air is always a valuable aid in the treatment, but it is by no means always practicable, and it is, therefore, well to know that excellent results may, as a rule, be obtained without it. Many cases are, in the beginning of the treatment, physically unable to take open-air exercise, and many of them are confined to hospitals and other institutions where this phase of the treatment cannot be very satisfactorily carried out.

In the foregoing outline I have not attempted to write a complete chapter on the treatment of leukomain-poisoning, but only to call attention to a line of treatment that I believe to have some specific influence in the treatment of this condition. This treatment can be combined or alternated with any other, as the individual case may demand. The conditions that I believe can be benefited or cured by this treatment are as follows:

1. *True migraine*,[1] which I believe to be a form of leukomain-poisoning, can almost certainly be relieved by this treatment. In these cases the treatment should be kept up uninterruptedly for from four to six weeks, and then every other week for from four to six weeks longer, and after this for one week in every month for a few months, when diet and exercise may be depended upon to complete the cure. I have now under treatment ten cases of migraine, all of which have been completely relieved of their paroxysmal attacks, as the following illustrative cases will show:

CASE I.—Mrs. G., aged thirty-five years, the mother of two children and the wife of a laboring-man, is a hard-working German woman, who has suffered from sick-headache ever since she can remember. During the past few years she has had an attack almost every week. These attacks would send her to bed, and keep her there from twelve to thirty-six hours. On her sick-headache days her husband would have to cook and do the housework.

[1] Loc. cit.

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On May 10th this woman was placed under treatment, and this has been continued, as already described, to the present time (July 25th). This case had only the medicinal treatment, no dietetic or hygienic treatment being attempted. Since this treatment was begun she has not lost a day from work, has not had a paroxysm of sick-headache, and has never been so well since she can remember.

CASE II.—Mrs. E., a German woman, thirty-three years of age, is a meat-eater and beer-drinker. Her mother and one of her sisters have migraine, and she is and has been for many years a great sufferer from the same disorder, having an attack about every two weeks.[1] She was placed under treatment on April 20th, and the treatment has been continued till the present time (July 25th) without a single paroxysm of sick-headache, and during this period she has been for the first time in many years perfectly well.

CASE III.—Mrs. M., aged thirty-five years, has had an attack of migraine about every two weeks for many years. During the past few years these attacks have been so severe that life had become scarcely worth the living. The attacks always come on at the menstrual period, and as a rule once in the intermenstrual period.[2] She has been under treatment from April 4th to July 25th, and during this time she has been free from headache and quite well.

2. *Migrainous epilepsy*, which I have demonstrated to be a form of leukomain-poisoning, can always be benefited and often cured by the treatment already detailed. This disorder, which I have fully described in my previous papers,[3] is a form of epilepsy that occurs as a sequel to migrainous headaches of former years, or the epileptoid attacks may at times take the place of or alternate with the migrainous headaches. It is my belief that many of the cases of so-called hystero-epilepsy belong to this class, and can therefore be either benefited or cured by the treatment. In migrainous epilepsy the treatment should be continued somewhat longer than in true migraine, and the potassium-permanganate prescription is, I believe, of prime importance in the treatment of these cases. My experience with this type of cases, however, has not been sufficient for me to judge of the value or limitations of the treatment. I have a number of such patients under my care at the present time with every promise of success from the treatment, but they have been under observation for too short a time to justify any conclusions as to permanent benefit to be derived from the treatment. The following case will illustrate:

CASE IV.—Miss F., thirty years of age, has a neurotic family history. She is a fairly well-nourished girl, with no evidence of mental impairment. She has had sick-headache since she was a child, and during the past six or seven years she has occasionally had epileptoid attacks instead of the migrainous headaches. These epileptoid attacks have been growing more frequent of late, so that at the present time she never fails to have one at her menstrual period, and not uncommonly one in the intermenstrual interval. The migrainous headaches have also continued, and rarely does the woman pass a week without remaining in bed one day on account of an attack. Formerly the attacks of sick-headache always came at the menstrual as well as during the intermenstrual periods, but now the menstrual headache replaces the menstrual epilepsy. The attacks of epilepsy are usually followed by some headache, but not by the nausea and vomiting that accompany the attacks of true migraine. The urine of this patient passed during and immediately after an attack of migrainous epilepsy and migrainous headache contained paraxanthin and xanthin in great excess.

The treatment was the same as has been outlined, and commenced on May 23d. The woman has passed two menstrual periods without a symptom of epilepsy, and with the exception of one slight attack of headache she has been quite well to the present time.

3. *Leukomain gastric neurosis* is a well-known form of migrainous disease that I have described in a previous paper, in which I gave the evidence upon which I based the conclusion that this was one of the manifestations of leukomain-poisoning.[1]

CASE V.—Mrs. P., aged thirty-four years, is the mother of three children. She had "always been a sufferer from sick-headache" up to November, 1894. At that time frightful gastric attacks took the place of the migrainous headaches. These gastric attacks were very sudden in their onset, and were attended with great pain and with vomiting of mucus. They continued with increasing fury till relieved by hypodermic injections of morphin. They recurred about every two weeks till, during March and April, they were so frequent and so severe that the patient was in bed more than half the time.

On April 15th this patient was placed on the treatment that has been outlined in this paper, and it has been continued up to the present time (three-and-a-half months). During this period the patient has not had the slightest symptom of leukomain-poisoning.

The result in this case was truly remarkable, and never have I seen the treatment of any disease followed by more specific results. For this reason I wish especially to ask for a trial of this treatment in cases of leukomain gastric neurosis.

[1] For a full history of this case, see THE MEDICAL NEWS, November 3, 1894, under the heading "Specimen No. 7."

[2] For a full history of the etiology and symptomatology of these attacks, see Transactions of the Association of American Physicians, vol. x, 1895.

[3] Loc. cit.

[1] For a full description of the etiology, symptomatology, and course of this phase of leukomain-poisoning, the reader is referred to my article in the Transactions of the Association of American Physicians, vol. x, 1895, where the case of "Mrs. P." is given with careful detail.



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4. *Hypochondriasis and neurasthenia* in patients having a gouty inheritance are often entirely relieved by the treatment already given.

CASE VI.—Mr. R., a middle-aged man, who had always been a good liver, came to my office last May to get relief from more or less constant pain in the abdomen. He was mentally depressed and so despondent about his condition that he could not be convinced but that he had some incurable abdominal disease. He was moody, irritable, and peevish, and did not think that medicines would do him any good. Knowing that there was a strong gouty tendency in this man's family I prescribed the treatment outlined, and he so promptly recovered that in three weeks he was entirely well.

5. Constant headache, sciatica, and intercostal and other neuralgias when occurring in the gouty can very commonly be relieved by the treatment described.

CASE VII.—Mr. S., aged fifty years, has been a great sufferer from myalgia and neuralgia for years. About five years ago he had an attack of acute gout, and since then he has had several very severe and prolonged attacks of "muscular rheumatism." When he sent for me he had been suffering from an attack of sciatica and intercostal neuralgia for about two months, which had persisted in spite of good medical attention. This man entirely recovered after one month of treatment. The dietetic and hygienic treatment was as carefully looked after in this case as the medicinal.

CASE VIII.[1]—Mrs. Y., aged thirty-seven years, has for years suffered from severe headache accompanied by nausea and sometimes vomiting. During the past nine years these attacks have occurred every two or three weeks, and have very often been so severe that the phenacetin and codein that she is accustomed to take gave her little relief.

On June 15th she was suffering from a headache that had continued almost uninterruptedly for three weeks; she had no nausea and no vomiting in this attack. Codein and phenacetin, of which she had taken a great deal, gave her only temporary relief. At this time Dr. Jones mentioned the case to me, and I advised the medicinal treatment described in this paper. This was done, and two days later the headache had ceased and the patient's general condition was very much better. The treatment was continued for a short while, and up to the present time (July 29th) the woman has remained quite well.

In this communication I have not attempted to give a clinical picture of every phase of leukomain-poisoning in which the treatment here detailed may prove beneficial, but have only sought to indicate the class of morbid conditions in which benefit may be expected from it.

Of the value of this treatment in articular gout I am not prepared to speak, although I have published evidence that the leukomains play a part in this disease. It is also my belief, founded upon the evidence given in previous papers, that many so-called uremic manifestations, including eclampsia, are in great part due to paraxanthin-poisoning, and for this reason I think that potassium permanganate given hypodermically might be of value in the treatment of puerperal and other eclampsias of uremic origin. I shall be under obligations for clinical reports on this treatment.

323 BROADWAY.

[1] I am indebted to Dr. Robert J. Jones, Interne at the Cincinnati Hospital, for the notes of this case.

## WHAT SHALL WE DO WITH THE OLD WELL?

BY HARVEY B. BASHORE, M.D.,
OF WEST FAIRVIEW, PA.

JUST about one-third of the population of the Eastern States, and a great part of the population of the whole country, depend upon shallow wells for their supply of drinking-water. That these old wells will transmit disease is no longer to be doubted, and the fact is established by practical experience. Cesspools and privies have almost everywhere grossly contaminated the soil, and, as a well drains a cone-shaped area, the diameter of whose base on the surface is anything from one-hundred to two-hundred times the depth of the well, it is almost invariably placed within the drainage of one of these filth-bearing spots. When conditions are such as these, is it any wonder that well-water transmits disease? Rather a wonder is it that the result is no worse. For instance, a passing stranger or a visitor, ill with diarrhea, stops in a town. The discharges, loaded perhaps with typhoid-germs, are thrown into a privy-vault, or, what is worse, are buried a foot or so beneath the surface of the adjoining garden. In the fulness of time these germs have passed into a neighboring well, and numbers of the community suddenly become sick. Or it may be that milk-cans washed with this water carry the fatal germs to a neighboring hotel. It is the old, old story, and Providence gets the credit in place of human negligence.

I just happen to think of one small town in Pennsylvania where sixty out of eighty inhabitants became ill of typhoid, and eight died—all because they had drunk infected well-water. A strange thing, too, frequently noted is that the most popular well in a district is likely to be the one most contaminated. This is probably due to the fact that the constant pumping consequent upon its popularity keeps the water at so low a level that the drainage of the well is increased; for the ground-water tends to maintain a certain level, and a diminution at any one point increases the drainage about that point.

Although many epidemics have been traced to the use of old wells, there might be many more, were it not for the fact that the infectious diseases

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require a specific germ for their origin, and until that is introduced contaminated well-water counts for little as a direct disease-producing factor; but let a colony of germs gain a foothold in one of these filth-bearing places, and their growth, development and propagation are simply matters of time. Let us take, for example, an old well at the corner of New Haven Green. For years this has been receiving the drainage of a filth-laden soil, but we have yet to hear of its being counted a factor in disease. Yet, who can tell at what moment fatal germs may find a lodgment? Surely he who drinks of this water has a two-edged sword over his head of which he never dreamed.

Still there are hundreds of just such wells scattered through the country, simply waiting to become infected; but only typhoid breeds typhoid, and for the moment we are perhaps safe; but, after all, we are not so safe as we may imagine, for it has been found that polluted water, although not directly causative of disease without the special pathogenic germs, still predisposes those drinking it to at least one disease—typhoid fever.

What, then, shall be done with the old wells? We all know that in the absence of a public supply deep tube-wells would be the best remedy. Many, very many people cannot avail themselves of this source of supply; and the next best thing is to treat these wells after a method devised by Dr. Koch, which is effective, cheap, and greatly lessens the dangers arising from the use of well-water. An iron tube, two or three inches in diameter—with its lower end perforated—is placed in the center of the well, and the surrounding space filled with fine gravel up to the highest point of water-level. This is then covered with sand to the top of the well; and a pump attached to the end of the tube makes a very effective tube-well. All water, in passing through the layers of sand and gravel, is effectually filtered, and the nitrifying organisms change the filth into harmless nitrates. A filter-bed like this removes, too, from 80 to 90 per cent. of the bacteria, and greatly, very greatly lessens the danger to which all are subjected who drink shallow well-water.

## CLINICAL LECTURE.

### *MODERN MILITARY SURGERY; THE NEW BULLET; PORTABLE DRESSINGS; TELEPHONIC PROBE.*

*Clinic at the Buffalo General Hospital.*

BY ROSWELL PARK, A.M., M.D.,
PROFESSOR OF SURGERY, UNIVERSITY OF BUFFALO.

I HAVE the opportunity, partly through the courtesy of Dr. Appel, now stationed at Fort Porter, of giving you a talk on gunshot-wounds, and of showing you the latest missile in use by the United States Army. The old cartridge used by the regular army, and still in use by the National Guard, contains 70 grains of powder, and the recoil is equivalent to 90 pounds. Thus, after firing a number of rounds the shoulder is likely to become black-and-blue. Then, too, the weight of a sufficient store of such cartridges is considerable. This new cartridge, designed to be used in a rifle made for the United States Government, contains a bullet of 0.30 caliber and 37 grains of powder of the smokeless variety. The projectile is conical and composed of a copper and nickel shell, into which is forced an alloy of tin and lead. The bullet is not altered in shape by its discharge from the piece, nor by its flight through the air. It has a tremendous initial velocity—over 2000 feet per second at the muzzle. The consequence is that, with a much lighter cartridge, fired from a much lighter gun, the modern soldier is about trebled in effectiveness in comparison with his comrade of ten years ago.

As to the surgical side of this matter, the penetrating power of the modern bullet is much greater than that of the old. At a distance of 1000 yards, the old bullet would go into solid oak about three inches. This will penetrate about twenty-two inches, and without altering in shape, whereas the old bullet would be shattered. The old bullet was fairly effective at 1000 or possibly 1500 yards. At a greater distance it would not usually inflict a serious wound, and it was impossible to aim accurately enough to be sure of hitting a man at any such distance. With the improved sighting of the new rifle, however, in connection with the modern projectile, a marksman can kill his man at two miles, and at 2000 yards the projectile will pass through three human bodies. The new bullet does not make so large a wound as the old one, but it does harm in a different way. If I had to be shot through the abdomen at a distance of 1000 yards, I should prefer to be hit by the new projectile, because it inflicts a smaller wound. But modern warfare is going to be more effective and more quickly fatal, because the fighting can be done at long range, as prize-fighters say. Dr. Appel tells me that the field-cannon having a caliber of three inches and firing a projectile similar to this small one is effective at a distance of eight miles.

When a bullet of the old type would pass through the head of the tibia the bone was shattered, and there was an extensive laceration, both external and internal. This modern projectile, on the other hand, will penetrate the bone, leaving a clean-cut hole, like that made by an augur. There is thus a kindly side to modern warfare. The soldier is disabled just as much as though his leg were shattered, but there is not the subsequent necessity for amputation. In other parts of the body, also, this bullet affords a chance for conservative surgery. The soldier can carry twice as much ammunition without increasing his load; he can defend himself with greater readiness; and if he is hit, unless in some mortal part, he has a better chance of surviving the wound.

Many of the soldiers of our army are now supplied with a little packet made up of silk coated with rubber, and containing sublimate-gauze, cambric, and triangular bandages, with a couple of safety-pins. On each triangular bandage are a number of pictures showing how it may be applied to almost any part of the body. In our army the hospital-stewards, company-bearers of

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stretchers, and the hospital-corps carry these. In the German army every man carries such a packet. Let us suppose that a man is shot from a distance. He has been taught to double up these little compresses and to put one on each side of the wound—for it must be remembered that this projectile will usually penetrate the body, instead of remaining inside like the older missiles—and to complete the occlusive dressing by applying the triangular bandage. Directions are also printed on the oiled-silk cover. Such a packet as this is available for others than soldiers, and years ago I did my best to have them introduced among the policemen, and to have an arrangement made for elementary instruction in their use. The idea was not carried out, but perhaps, with a more liberal *régime*, it may be at some future time.

I wish to show you a new instrument that I have just procured and which bears on the topic that we have been discussing. Bullets of the modern style will not be likely to lodge unless they have gone through several files of men, but pistol-balls and bullets of the old style are not so likely to escape. The old Nélaton probe was a piece of metal with an end of unglazed porcelain melted on it so as to be perfectly secure. This was passed along the evident bullet-track, and, if it struck the lead, there would be left a black mark on the porcelain. This ingenious instrument is still effective in some cases. In a general way, modern surgeons are opposed to hunting for bullets. The harm that a bullet does is mainly at the instant of its flight, and, as a rule, it then becomes an inert foreign body, and thus it does not call for removal unless it press on some particularly sensitive tissue like that of the nervous system. There are cases, however, in which we must search for bullets and there are times when patients insist on their removal. A variety of electric appliances have been devised for locating the ball, and the thought has arisen in many minds that if we could bring something in contact with the metal which shall effect an electric contact, the current may be made to swing a needle on a dial or ring a bell or give some other warning. Those of you who are well informed in electricity may understand what is meant by the induction-balance. This was tried in the case of President Garfield, but failed because it was too delicate. There have been a number of attempts made to adapt the telephone to indicate when the point of the probe has touched the bullet. This is the latest model of Dr. Girdner's telephonic probe. Dr. Girdner is a New York surgeon, not in military practice; but usually in times of peace the civil surgeons see as many bullet-wounds as those in military practice. The slightest difference in the currents passing in the cords connected with the ear-piece of the telephone produces a faintly audible click. One of the wires is connected with an insulated probe having a metallic end. The circuit is completed by a metallic electrode placed in the patient's mouth, where the moisture insures the conduction of the current. The instant the end of the probe comes in contact with the bullet a slight grating or buzzing sound is heard. By repeating the experiment once or twice, you can assure yourself of the location of the ball. Other experimenters have completed the electric circuit by placing a sponge electrode on the surface of the body, but Dr. Girdner's method is superior. I would suggest only one improvement on the instrument in its present form, namely, the attachment of an elastic band to hold the receiver to the ear, so as to leave both of the surgeon's hands free.

## CLINICAL MEMORANDA.

### *TWO CASES OF AKROMEGALY.*

BY HERMON C. GORDINIER, A.M., M.D.,
OF TROY, N. Y.;
PROFESSOR OF PHYSIOLOGY AND LECTURER ON THE ANATOMY OF THE NERVOUS SYSTEM, ALBANY MEDICAL COLLEGE.

CASE I.—William U., aged seventy-seven years, a married Frenchman, was by occupation a shoemaker. His father and mother had died at an advanced age, the cause of death being unknown. The man had had a brother who had died of some form of paralysis at seventy-eight years of age. No nervous history exists in the family, apart from the brother's case. The patient's general health was excellent until five years ago, saving periodic attacks of headache. When quite young he had an attack of pneumonia; but he can recall to mind no other illness until the existing enfeeblement began. The present condition began about five years ago, with frontal and occipital headaches, which were frequently accompanied by dizzy spells, which often caused the patient to fall. These attacks have gradu-

FIG. 1.

ally increased in severity until the present time, and seem, apart from his general weakness, a source of great discomfort. His children have noticed, during the past year particularly, that his memory is very defective, that he is easily amused, and laughs heartily at the most silly trifle; that he seems to take no interest in things about him, and sits most of the time. At rather frequent intervals he labors under fleeting delusions. Prior to the age of sixty-eight his daughter noticed that he began to be stooped, formerly having been noted for his upright carriage. She has observed for a long time the increase in the size of hands and feet. He suffers from thirst,

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and consumes large quantities of water, and has at all times an enormous appetite, and frequently will arise at night and eat heartily. He is very sensitive to cold, and has a slight cough during the winter, which disappears with the onset of warm weather. He has frequent attacks of diarrhea, but no hemorrhage from any mucous surface. He voids about three quarts of urine in the twenty-four hours. The teeth have been moderately well preserved until within three years, when a gradual decay and falling out began to take place.

The patient is short, stout, and heavy-boned. He is bent decidedly forward. His height is 5 feet 4½ inches. The hands are very large and broad, the fingers and thumbs large and sausage-shaped and misshapen. The feet also are large, broad, and flat. The chest is very large and deformed. The head is large, the forehead retreating; the superciliary ridges are large and overhanging; the hair is long and coarse, and there is no tendency toward baldness. The ears are normal in size. The skin of the face is thrown into great wrinkles, but is not specially unctuous in feel or appearance. There is no thickening of the skin, which can easily be pinched into folds. The naso-labial folds are accentuated. The nose is moderately long and very broad; the alæ nasi are bulbous; the nasal openings broad. The lips are large, everted, and thickened, but not cyanotic. The malar bones are large, bulky, and prominent. The lower jaw is massive. Prognathism is well marked. There is slight puffiness of the loose tissue about the lower lids. The tongue is long and broad, and projects about 1½ inches beyond the incisors. The thyroid is not palpable. The face is oval; the teeth in the lower jaw are fairly well preserved, but separated by distinct spaces. There is no sponginess of the gums or pallor of the mucous surfaces. The voice is coarse and rough. The following measurements were taken:

| | | |
|---|---|---|
| Head, occipito-frontal | 24⅛ | inches. |
| Occipital protuberances to glabella | 14⅛ | " |
| Occipital protuberances to tip of chin | 11½ | " |
| Top of forehead to tip of chin | 9½ | " |
| Top of forehead to upper end of nasal bone | 3½ | " |
| Length of nose | 2¾ | " |
| Width of alæ nasi | 1⅞ | " |
| Septum to tip of chin | 3¼ | " |
| Between malar bones | 5½ | " |
| Width of mouth | 2½ | " |
| Thickness of lower lip | ¾ | inch. |
| Length of lower lip | ⅝ | " |
| Thickness of tongue | 1¼ | inches. |
| Projection beyond incisor teeth | 1½ | " |
| Between mastoids | 15 | " |
| Temporo-maxillary joint to symphysis | 6½ | " |
| Between angles of lower jaw | 9½ | " |
| Length of ears | 2⅞ | " |
| Width of ears | 1¼ | " |

The chest is large in every diameter; the antero-posterior and lateral diameters are about the same. There is marked dorso-cervical kyphosis, with slight lower dorsal and lumbar lordosis, and slight scoliosis. The head is thrust forward, the chin almost touching the sternum. The left shoulder is lower than the right. The chest bulges posteriorly, more so on the right side. The scapulæ are massive, the right larger (7½ inches) and more prominent than the left (7⅛ inches). The clavicles are prominent (right 7⅛ inches, left 7½ inches). The sternum bulges but slightly. The upper ribs are large and prominent. The circumference of the chest through the nipple is 39 inches; at the third rib, 38 inches; in the lower mammary region, 37 inches; on deep inspiration, 39¾ inches; on forced expiration, 38½ inches. The chest moves up and down as if one solid mass, there being but very slight expansion.

The pulmonary resonance is normal; liver-dulness begins in the fifth intercostal space in the mammillary line, in the seventh interspace in the axilla, and in the ninth interspace posteriorly. No vesiculo-tympanitic note is to be heard anywhere over the chest. Good vesicular murmur is present. Expiration is nowhere prolonged; no adventitious sounds are to be heard. Percussion-dulness is not elicited over or on either side of the manubrium. Vocal fremitus is normal. Respiration averages 26 per minute.

The area of cardiac dulness begins at the third rib and extends laterally to the anterior axillary line. The aortic second sound is accentuated. The apex-beat is situated in the sixth interspace on the left, outside the nipple. The first sound is booming, and a little murmurish. There is no epigastric pulsation. The superficial veins of the chest are not prominent, and there is no pulsation of the jugulars. The carotids and radials are atheromatous. The pulse is 72. Arcus senilis is well marked.

The arms are short and massive, the muscles well developed but flabby. The elbow-joints and the wrist-joints are broadened; the lower ends of the bones of the forearms enlarged. The distance from the acromion process to the styloid on the right side measures 23 inches; on the left, 22 inches. The hands are truly enormous, being very broad in comparison with their length; the fingers are very bulky and broad, the thumbs short and broad, the phalangeal articulations enlarged and freely movable. The hands present a purplish hue, and the veins of the dorsum of the hands are overdistended. The palms of the hands and the palmar surfaces of the fingers are covered with enormous cushion-like pads, which do not pit on prolonged pressure, and which give one the sensation of a diffuse cellulitis. Pads of a like nature are found on the palmar surface of the thumbs and about the thenar eminences.

The circumference of the wrist on the right side is 7½ inches; on the left, 7½ inches; that of the hands is 11 inches on the right; 11 inches on the left. From the styloid process to the tip of the middle finger measures 8½ inches on the right, 8 inches on the left. The circumference of the thumb is 3½ inches.

The feet are very large and broad; the veins of the dorsum are prominent, the heels project well backward, and the bottoms of the feet are flat. The well-known cushion-like pads, so aptly described by Marie, are well marked and completely surround the heels. The toes are uniformly enlarged, the big toes being much broadened, and the cushion-pads are present on the plantar surfaces of all the toes. The longest diameter of the feet is 10⅝ inches right, 10¼ inches left. The circumference over the heel and instep is 15¼ inches left foot, 14⅛ inches right. The circumference of the back of the toes is 9 inches right, 8¾ inches left; the greatest width is 4⅝ inches left, 4¼ inches right. The length

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of the great toes is 4 inches; the circumference 3¾ inches right, 3½ inches left.

The patellæ are not specially enlarged; the ankle-joints are strong and massive; the lower ends of the tibiæ are enlarged.

The patient is easily amused, and laughs heartily at mere trifles. His memory is very defective. The mind is frequently occupied by fleeting delusions. At present he labors under two delusions. One is that he has been offered a very fine position and that he must immediately leave to secure it; the other is that he will be presented with a very costly and beautiful gift. Sometimes he is extremely happy, singing, whistling, etc.; and then within a few minutes he will become depressed, melancholy, and listless to an extreme degree.

The pupils react to light and in accommodation. There is no hemianopia. The Wernicke hemiopic pupillary reflex is present. Movement of the eyeballs is perfect. The optic discs are normal. Hearing is still defective. Complete anosmia is present. Sensation of taste is perverted. No other sensory disturbance exists. There is no motor paresis and no muscular tenderness. The bladder and rectum are normal. There is no change in the temperature-sense. The reflexes, superficial and deep, are normal.

The urine varies in amount from three to four quarts; its reaction is acid; the specific gravity 1020. There is present neither sugar, nor albumin, nor blood, nor casts.

Examination of the blood discloses slight leukocytosis, the excess being due mostly to neutrophiles, with a few eosinophiles; unicellular leukocytes are scarce. The red corpuscles appear normal; blood-platelets are not found, and also no nucleated red corpuscles.

The hemoglobin-estimation is 85 per cent.

The blood-count shows 4,500,000 red cells to the cubic millimeter.

On May 25, 1895, the patient complained bitterly of frontal and occipital headache, which was attended with marked vertigo. The appetite was enormous, and the man was constantly hungry. He had pains, neuralgic in nature, in the extremities. During the heated spell he sweat moderately; he ordinarily sweats but little.

On June 3, 1895, he was greatly prostrated, and very much stooped. He complained constantly of dizziness and headache, and had a severe fall from vertigo.

CASE II.—My attention was directed to this case by my student, Professor McKenna, who observed him among a crowd of inmates at the Rensselaer County Hospital, and thought from his general appearance that it was an undoubted case of akromegaly.

John W., aged sixty-three years, an Irish widower, had been at different times a tailor and a miller. His father had died of old age, his mother in childbirth. He has two brothers living and in good health. There is no history of insanity or other nervous affection in the family. The patient had typhus fever in 1849, but otherwise has been in perfect health. He does not suffer from headache or dizziness. He has no correct conception of the length of time that he has been ill or of any special changes that have taken place in his bony system, being an individual of rather inferior mental development and without education. But has noticed that he requires a much larger hat than formerly.

He complains of occasional attacks of facial neuralgia, and has had two distinct attacks of erysipelas. He has no dyspnea, no thirst, and no great hunger, but enjoys a good appetite, and does not sweat immoderately. He has been alcoholic all his life, but denies syphilis. He uses No. 9½ shoes. There is no history of goiter. The memory is good and vision is fair. The patient never suffered from asthma or dyspnea.

He has a large head, with a retreating forehead and prominent and overhanging superciliary ridges. The occipital region of the skull is very conspicuous.

FIG. 2.

The patient is short and stout, coarse-featured, and 5 feet 4 inches high. He stoops forward. The gait is slow, the feet being held widely apart, and the head carried well forward, so that the chin almost touches the sternum. The hair is coarse, sparse over the occiput, and normal in amount in other localities. There is marked cervico-dorsal kyphosis. The voice is rough and slightly hoarse.

Prognathism is well marked. The lips are thickened and everted, particularly the lower one. The naso-labial folds are greatly accentuated. The nose is short, thick, and bulbous at its extremity. The feet are large. The chest is very massive and prominent. The pulmonary expansion is slight. The clavicles, ribs, and scapulæ are very large.

The head is large, the forehead retreating, the superciliary ridges enormously developed and overhanging. The occipital region of the skull is prominent. The vertex is rounded. The lower jaw is very massive. Many teeth have fallen out, and those remaining are in a decayed and filthy condition; those of the lower jaw are irregularly set and project decidedly beyond the upper. The malar bones are large and prominent. The zygomatic arches are well developed.

The nose is prominent and very broad, especially at its root. The nasal openings are large, the extremity of the nose bulbous, and the member itself decidedly purplish. The lips are much thickened, the lower one considerably more everted than the upper and projecting beyond it. The ears are unusually large, of a waxy, greasy

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appearance, and seem thickened. Transverse wrinkles exist on the forehead. There is no edema and no thickening of the skin. The skin of the face has a decidedly oily appearance and feel. The face might in general conformation be likened to that of an ape. The whole face, with the massive lower jaw and the prognathism, would remind one of a depraved criminal.

The tongue is large, thick, and broad. It can be protruded about two inches beyond the incisor teeth. The gums are pale and do not bleed on severe irritation. The patient has never had hemorrhages from mucous surfaces.

The following measurements were made:

| | |
|---|---|
| Circumference of head | 24½ inches. |
| Distance from forehead to occiput | 13 " |
| Distance from occipital protuberance to tip of chin | 13¾ " |
| Distance from top of forehead to tip of chin | 9 " |
| Distance from top of forehead to upper part of nasal bone | 3½ " |
| Distance from upper part of nasal bone to tip of nose | 2⅞ " |
| Width of alæ nasi | 2 " |
| From septum to tip of chin | 3½ " |
| Width between malar bones | 7 " |
| Width of mouth | 2⅞ " |
| Thickness of lower lip | 1 inch. |
| Length of lower lip | 2¼ inches. |
| From mastoid to mastoid | 14 " |
| Lower jaw, from gums to symphysis | 2 " |
| Length of jaw from temporo-maxillary articulation | 6¼ " |
| From angle to angle of lower jaw | 9¼ " |
| Length of ears | 3½ " |
| Breadth of ears | 1¾ " |

The chest is enlarged in every dimension; the antero-posterior diameter is greater than the transverse. The upper border of the sternum, with the first three ribs and costal cartilages, is bulged markedly forward. The clavicles are very large, measuring from sternal end to acromion 6½ inches on the right side, 7¼ inches on the left. The ribs feel much thickened and enlarged, particularly the upper prominent ones. They are united with those below, judging from the obliteration of the intercostal spaces and from the great resistance offered. The veins on the right side of the chest are visible. None is to be seen on the left. There is slight lordosis in the lumbar region, and well-marked cervico-dorsal kyphosis. Posteriorly in the right upper dorsal region the chest bulges considerably; there is no bulging on the left side. The scapulæ are prominent and massive; their spinous processes are well defined. From the acromion process to the angle of the scapula measures on the right side 10½ inches; on the left side 10 inches. The spine of the right scapula measures 7¼ inches, that of the left 7 inches. The right shoulder is decidedly lower than the left. There is no fulness at the back of the neck. The chest moves up and down as if one solid piece, and apparently there is no chest-expansion in an anterior or a lateral direction. The vocal fremitus has its normal disparity.

The pulmonary percussion-note is normal. Liver-dulness begins at the fifth rib; cardiac dulness at the lower border of the fourth rib; splenic dulness is normal. An area of dulness exists beneath the upper part of the sternum and extends laterally beneath the first ribs. No vesiculo-tympanitic note is to be heard anywhere over the chest. The heart-sounds are normal. The apex-beat is in its normal position. There is no prolonged expiration; the vesicular element is everywhere well marked. The pulse is 64, soft, full, and strong; respirations are 20; the vessels are not atheromatous. Measurements of the chest:

| | |
|---|---|
| Circumference of second rib | 38½ inches. |
| Circumference of nipple | 38 " |
| Circumference in lower mammary region | 37 " |
| On deep inspiration | 39 " |
| On deep expiration | 38 " |

The thyroid gland is not palpable.

The abdomen is protuberant and lax, and the skin and soft parts are thrown into great transverse folds.

The hands are broad and spade-shaped; the veins of the forearm are moderately distended; the fingers are broadened; the joints are all enlarged and freely movable; the finger-ends are bulbous and cushioned on the palmar aspect; the nails are oval; the thumbs are long and broad.

The circumference of the wrist-joint on the right side is 7¾ inches; on the left side 7¼ inches.

The circumference of the hands when closed is on the right side 11 inches, on the left side 10¾ inches.

The distance from the styloid process to the tip of the middle finger is on the right 8 inches, on the left 8 inches.

The muscles are soft and flabby.

The feet are long, broad, and flat; all of the toes, save the big toes, are arched at the junction of the first and second phalangeal joints. The large toes are broad.

There is no enlargement of the lower ends of the right tibia and fibula. On the left is an old fracture, with deformity and marked thickening of the whole shaft of the tibia.

A marked pad or cushion of flesh is present about the inferior, lateral, and inferior surface of heels, which project posteriorly beyond the os calcis.

The longest diameter of the foot is 10⅛ inches on the right, 10⅛ inches on the right; about the heel and instep, 13 inches. The circumference of the ball of the toes is 8½ inches on right and left; the greatest width is 4 inches on the right, 3⅞ inches on the left. The length of the great toe is 3¼ inches on both sides. The circumference of the big toe is on the right side 3½ inches, and on the left 3 inches. The patient is flat-footed; the gait is clumsy and waddling, the legs being spread wide apart.

The pupils are moderately contracted, but respond to light and in accommodation. The movements of the eyeballs are perfect. There is no evidence of sympathetic irritation or paralysis. Wernicke's hemiopic pupillary reflex is present; there is no hemianopia. The hearing-distance is reduced to 3 inches on the left side, to 4 inches on the right, in consequence of a chronic catarrh of the drum. The other cranial nerves are intact.

There is no muscular tenderness and no anesthesia. The reflexes are normal, and there is no paresis. Apart from the low order of intelligence there exist no mental symptoms. The urine is normal in amount, and contains no albumin, sugar, blood, or casts.

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There exists a normal proportion between the red and white blood-corpuscles. The whites are mostly neutrophiles, with an absence of eosinophiles. There are no nucleated red corpuscles. The hemoglobin is estimated at 70 per cent. The red corpuscles number 4,800,000 to the cubic millimeter. The blood flowed freely and was very cyanotic.

## EXOPHTHALMOS (GRAVES' DISEASE) WITHOUT THYROID ENLARGEMENT.

BY P. S. DONNELLAN, M.D.,
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VISITING PHYSICIAN TO ST. MARY'S HOSPITAL; LECTURER ON PHYSICAL DIAGNOSIS, MEDICO-CHIRURGICAL COLLEGE.

M. H., a married woman, aged forty years, a weaver by occupation, was admitted to my care at St. Mary's Hospital on May 4, 1895. She presented the following history, for which I am indebted to Dr. Joseph H. Ross, one of the resident physicians at the hospital.

Her father had died at the age of forty-five years from chronic nephritis; her mother at the age of thirty-two years of puerperal fever. All of her brothers and sisters had died in infancy. In the families of the parents there was no history of nervous disease or of any disease similar to that from which the patient was suffering.

The patient herself was born in Scotland, and came to this country when fourteen years of age. She had always enjoyed good health until twelve years ago, when she was treated at this hospital for typhoid fever, from which she recovered without complication or sequel. She remained in good health until three years ago, when her present illness began—the result, she states, of a fright from a beating she received from her husband. There was no history of rheumatism or of alcohol, and specific infection was denied.

Since her present illness began, the woman complains of constant and severe cardiac palpitation, with shortness of breath, vertigo, and insomnia. For three months previous to admission there has been swelling of the feet, particularly after standing or walking for any length of time; and the quantity of urine was much diminished. The patient has also noticed that her eyeballs have become very prominent, and they feel, as she expresses it, as if they would bulge out of her head. She suffers from occasional attacks of bilious vomiting; her appetite is poor; her bowels are constipated, and her tongue is coated.

The patient is a feebly nourished anemic-looking woman. Her eyeballs are very prominent. In looking downward the upper eyelids do not follow the descent of the eyeballs (von Graefe's symptom), and, while the voluntary movements of the lids are unimpared, the complete absence of involuntary winking (Stellwag's symptom) is noted. Dr. Louis F. Love, ophthalmologist to the hospital, kindly made an examination of the eyes for me and confirmed these observations. He reported in addition: "Pupils, 2½ mm., about equal; active to light, but sluggish in accommodation and convergence. Ophthalmoscopic examination—corneæ maculated, rest of media apparently clear; discs oval, axis 180°; veins well filled, with dilatation; marked astigmatism in each eye." Dr. G. Hudson Makuen, laryngologist to the hospital, kindly examined the patient for me, and reported that there was no enlargement of the thyroid gland.

There was visible pulsation in each carotid artery noticeable at a distance of six feet from the patient. The pulse varied between 160 and 190 beats per minute, except when the patient had been taking two ounces of infusion of digitalis in the twenty-four hours for several days, when it dropped to 68 beats per minute, only to rise again when the digitalis was suspended. The vascular tension was much below normal.

In examining the chest, increased frequency of respiration (from twenty-five to thirty per minute) was noticed, but otherwise the respiratory functions were normal. The heart was hypertrophied, as shown by increased area of cardiac dulness downward and to the left. The impulse was felt in the sixth interspace to the left of the nipple-line. Auscultation revealed violent and irregular cardiac action, with increased frequency of the number of beats and synchronous with the radial pulse. A well-marked mitral systolic murmur was heard at the apex, transmitted to the axilla and to the angle of the scapula. The urine was negative chemically and microscopically, and upon admission measured only two ounces in the twenty-four hours, but rest in bed, and the use of the infusion of digitalis with strychnin, rapidly brought the quantity up to the normal.

The principal points of clinical interest in this case are the absence of enlargement of the thyroid gland and the visible pulsation in the carotid arteries. Most observers with whose studies I am acquainted regard these phenomena as unusual. Trousseau called cases of this kind *formes frustes* (abortive forms), and considered them important types of the disease. An elaborate study of cases in which either the goiter or the exophthalmos may be wanting was made by Marie, who found that in such cases tachycardia was frequently present, and often accompanied by tremor. Hirt quotes the observations made in his wards by Ernst Cramer, who was able to confirm the results of Marie. The consensus of opinion seems to be that the excited and accelerated heart-action is the first characteristic symptom of Graves' disease; then follows symmetric enlargement of the thyroid gland, the exophthalmos being, as a rule, of later development. Whether in this case the natural order of things has been reversed, and the enlargement of the thyroid gland may yet take place, only subsequent observation can determine.

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*For the James E. Reeves Fund* we have received from Dr. Theodore G. Davis, $1.

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## SUCCESSFUL LIGATION OF THE LEFT COMMON CAROTID ARTERY.

BY FRANK L. LAPSLEY, A.B., M.D.,
RESIDENT INTERNE, LOUISVILLE CITY HOSPITAL.

ON March 27th I was called to see M. E., aged thirty-three years, a bricklayer, and found him in a state of intoxication, with the surroundings strongly suggestive of his having attempted suicide. I learned that in attempting to shoot himself through the head his arm had been struck by someone, knocking the pistol downward, when it was discharged. The bullet, of 32-caliber, entered the mouth and passed out at the left angle, just between the superior and inferior maxillary bones. There was evidence of slight hemorrhage having occurred, but this had ceased when I reached the man. He was at once conveyed in the ambulance to the city hospital, where, with strict aseptic precautions, an exploration of the wound was made, using my little finger as a probe. I found the course made by the bullet to be slightly upward and outward. The bullet was located against the ramus of the inferior maxillary bone and was extracted with a pair of artery-forceps. It was so battered out of shape I could not determine positively, but supposed that it was removed *in toto*.

Further examination showed that the bullet had struck the ramus near its lower anterior border. Three small spicules of bone were felt and removed.

Slight hemorrhage followed this manipulation, but was easily controlled by packing with iodoform-gauze. The wound was thoroughly irrigated with a solution of mercuric chlorid 1 : 3000.

At the end of forty-eight hours there was evidence of beginning suppuration, which continued freely, despite the daily irrigation with mercuric chlorid and packing with fresh gauze. The jaw and neck were so swollen as to prevent the man from opening his mouth further than to admit a small glass-tube, through which he took stimulants and nourishment. The administration of morphin and applications of heat were necessary to relieve the intense suffering.

At midnight of April 10th, two weeks from the reception of the injury, the man suddenly had a profuse secondary hemorrhage. This was readily controlled by packing firmly in the angle of the mouth. This hemorrhage was, I think, due to the process of suppuration extending into the walls of one of the facial branches. On the next day I deemed it advisable to establish freer drainage, and accordingly made a counter-incision in the neck on the left side about two inches from the median line. This opening communicated with the mouth, and the entire tract was irrigated daily with mercuric-chlorid and hydrogen-dioxid solutions. The patient continued to suffer great pain in the jaw, the side of the face, and the ear. The swelling and inflammation of the neck and the side of the face subsided.

On April 17th, just one week later and at the same hour of night, the man had another and more profuse hemorrhage than the first. I reached his bedside quickly and observed blood to be streaming from the wounds both in the mouth and neck. I at once compressed the carotid artery and the hemorrhage ceased, but the patient having lost two pints of blood was so exsanguinated that he fainted. He was resuscitated by stimulants and application of heat.

I packed the wound in the mouth and applied a tight compress over the wound I had made in the neck. I realized that the case now demanded immediate surgical interference; so I summoned Drs. Grant, Dugan, and Vance, and when they saw the case a few hours later a false aneurism existed.

It was agreed best and safest to ligate the common carotid artery, and the operation was undertaken by Dr. Grant and myself. The patient was accordingly prepared and anesthetized, taking the anesthetic badly. The point selected as the most favorable was that part of the vessel which is at the level of the cricoid cartilage. It is unnecessary to give a detailed account of the steps of the operation, but suffice it to say the vessel was reached with little difficulty and ligated with No. 10 braided Chinese silk, bearing in mind the relation thereto of other important structures. The incision was carried up over the angle of the jaw, where, after turning out some clots, considerable necrosis of the bone was discovered. Another portion of the bullet was found lying against the anterior surface of the bone, showing that it had split and perforated the ramus. This was thoroughly scraped and irrigated, and allowed to remain open and granulate from the bottom. Two sutures were introduced at the lower angle of the wound and the usual antiseptic dressings applied. The man rallied from the shock nicely, and was at once put upon stimulants, reconstructives, and plenty of nourishing diet. His convalescence was gradual and permanent. The wound healed kindly, and he now suffers no inconvenience, except a slight stiffness of the jaws, which I think he will eventually overcome.

The pulsation in the temporal artery is entirely absent on the left side. The patient was discharged from the hospital on June 24th.

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## COMPLETE PROLAPSE OF A PREGNANT UTERUS. OPERATION, FOLLOWED BY ABORTION.

BY J. MASON HUNDLEY, M.D.,
OF BALTIMORE, MD.;
ASSOCIATE PROFESSOR OF DISEASES OF WOMEN AND CHILDREN IN THE UNIVERSITY OF MARYLAND.

THE case herewith reported demonstrates the value of amputation of the cervix with repair of the perineum for the cure of complete prolapse. Various pessaries, together with tampons and attention to the general health, had all been tried without effecting a cure. Mrs. H. E. H., aged twenty-three years, the mother of one child, four years of age, presented herself at the University of Maryland Clinic, July, 1893, with the following history: Since the birth of her child she had suffered with bearing-down and dragging pains in the lower abdomen, especially when on her feet for any length of time. For the past six months she had been unable to lead an active life because her uterus came down so low, causing pain and unendurable discomfort. She was separated from her husband and had to make a living for herself and child, and, therefore, sought relief.

Upon examination, the uterus was found entirely without the vulva. The cervix was eroded, and the mucous membrane of the vagina presented the appearance of

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parchment. There was no disease of the adnexa and no mass within the pelvis; nor were there fibroids of the uterus. The perineum was not lacerated, but greatly relaxed, and the muscles attenuated. The woman was extremely emaciated. She menstruated regularly and not profusely, and she said that she had just gotten over her sickness. We admitted her at once to the gynecologic ward, and she was operated on by me, as Dr. William T. Howard was absent from the city. Just before operating, a probe was passed into the uterus, to demonstrate to the class the great difference between the length of the uterus in the third degree of prolapse and that of the same organ in its normal position. The cervix was amputated at its vaginal attachment and the raw surface covered over by mucous membrane. The modified Emmet operation was performed on the perineum. On the evening of the day of the operation I was telephoned for, and on reaching the hospital found the woman bleeding quite freely. I examined her as best as I could and found that the blood was coming from the uterine cavity. I tamponed the vagina, and on removing the dressings in the morning I found in the vagina from a four to a six weeks' fetus. The woman made an uninterrupted recovery in spite of the abortion. After leaving the hospital she went to live with her husband again, and last September gave birth to a full-term child, the labor being normal and not unusually tardy.

I am sure this woman intentionally deceived me as to her menstruation. The experience, however, taught me a useful lesson, which will not be easily forgotten. Whatever the condition of a uterus, the possibility of pregnancy should never be lost sight of. I have had no experience with Hegar's sign of early pregnancy in a procidented pregnant uterus, but, under normal conditions, I believe it a most valuable sign; in fact, I have never found any condition of the uterus giving the same thinning of the lower uterine segment as that found in pregnancy. If I had looked for the sign in this case, I might have demonstrated it, and have avoided the blunder of operating upon and introducing a probe into a pregnant uterus.

## BACTERIOLOGIC NOTE.

### *A NEW METHOD OF STAINING FLAGELLA.*

BY ROBERT L. PITFIELD, M.D.,
OF PHILADELPHIA.

LOEFFLER'S method of staining flagella is probably the one most commonly and generally employed. This consists in treating the bacteria to be stained with a mordant made up of tannic acid and ferrous sulphate, and then staining the bacteria with a solution of an anilin color in water.

I have devised a method which is simple, and, in my hands, much more reliable and easier of execution. It is as simple as the staining of bacteria with ordinary carbol-fuchsin, and I have stained over fifty preparations of flagellated micro-organisms, each time demonstrating the flagella most satisfactorily.

The method consists in the use of but a single solution, which is at once mordant and stain. The solution should be made in two parts, which are filtered and mixed.

A.

| | |
|---|---|
| Saturated aqueous solution of alum | 10 c.cm. |
| Saturated alcoholic solution of gentian-violet | 1 c.cm. |

B.

| | |
|---|---|
| Tannic acid | 1 gm. |
| Distilled water | 10 c.cm. |

The solutions should be made with cold water, and immediately after mixing the stain is ready for use.

The cover-slip is to be carefully cleaned, the grease being burned off in a flame, and after it has cooled the bacteria are spread upon it, well diluted in water, care being taken to exclude culture-medium. After the preparation has been thoroughly dried in the air it should be held over the flame with the fingers, as Loeffler has directed. Afterward the stain is gradually poured on the slip and heated gently, bringing the fluid almost to a boil; the slip covered with the hot stain should then be laid aside for one minute, then washed in water and mounted.

Upon examination, the bacteria, both isolated and in clumps, will, if motile, be found to have the flagella clearly and delicately defined. In the middle of the cover-slip, as well as around the edges, the bacteria will be found equally well stained; the clumps being surrounded by a zone of delicate fringing flagella, each being well stained and distinctly outlined from its fellows.

If a clean preparation is desired, the stain, after mixing, may be filtered, but I have found that the most reliable method is to use the unfiltered stain. In the case of the former a clear field is produced without the detritus, etc., precipitated on the glass around the micro-organisms; and all the flagella are stained, but not so distinctly as with the unfiltered solution.

If the filtered stain is used, a second stain of anilin-water containing gentian-violet had better be used, which should be applied but a moment and then washed off, thus leaving a clean field, showing only the bacteria lightly stained, with their flagella still more lightly colored.

In examining the different bacteria, I have found that the bacillus of typhoid fever, the colon-bacillus, the cholera-bacillus, and the bacillus of hog-cholera, each stained well by this method, and without the addition of any acid or alkali to the mordant, such as Loeffler uses.

The bacillus of typhoid fever showed the flagella most beautifully, and there seemed one flagellum to each cell that stained more deeply than the others and appeared larger and stronger.

As to the keeping qualities of the stain I have not fully ascertained, but presumably it should be mixed daily to yield the best results.

## MEDICAL PROGRESS.

***Hepatic Abscess following Duodenal Ulceration Caused by a Burn.***—HEHIR (*Indian Medical Record*, vol. viii, No. 12, p. 438) has reported the case of a soldier who sustained a severe and extensive burn, principally involving the face, scalp, front of the neck, and the trunk, due to the explosion of a kerosene-oil lamp. When seen, twenty minutes after the accident, the patient was in a semi-collapsed state. Morphin and atropin were at once in-

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jected hypodermically, and the burned surface covered with carron-oil. On the ninth day the patient complained of pain in the epigastric region, which gradually extended until it occupied the whole of the anterior part of the abdomen above the umbilicus. The pain was increased by pressure, especially in the epigastrium, and also by cough, deep breathing, and the lateral decubitus. There was slight fulness of the liver, but no pain on pressure. On the twelfth day diarrhea began, the stools at first being semi-liquid, and later containing blood and mucus. On the twenty-first day copious hemorrhage took place, which was checked by the use of cold externally, and ergot and turpentine internally. The patient now appeared to convalesce, and on the thirty-fifth day returned to duty and continued at work for eighteen days. He was then seized with a croupous pneumonia, which ran an ordinary course, but after the crisis he failed to convalesce satisfactorily. The cough continued, with diffuse pain over the whole of the base of the right lung, and there was perceptible bulging below the lower angle of the right scapula. After this condition had continued for a month, six ounces of inflammatory fluid were on exploratory puncture removed from the pleural cavity, but without affording relief. The temperature remained elevated, and profuse sweats occurred at night. To these symptoms rigors became added, and there appeared severe pain over the liver and lower border of the chest-walls posteriorly.

After a time the liver began to increase considerably in size, the cough became more severe, dyspnea set in, and severe vomiting occurred during each exacerbation of temperature. It was believed that an accumulation of pus had formed in the liver, but exploratory puncture failed to demonstrate its presence. Some time later an exploratory operation was undertaken and fifty-nine ounces of pus were removed. The patient did well for a time, but the symptoms returning, forty ounces of pus were removed at a later date. The patient, however, failed to rally, and gradually became worse, and finally died, although twenty-seven ounces of seropurulent fluid were removed from the right pleural cavity.

Upon post-mortem examination practically the whole of the lower half of the duodenum was found in a state of patchy congestion, with five healed and two healing ulcers, the largest about the size of a shilling, the smallest a half-inch in diameter. In one place three ulcers had run into one another, and the previous ulcers were represented by a grayish depression with an uneven base, but well-defined borders. The whole of the pyloric extremity of the stomach was thickened, soft, and congested, and just above the upper semicircumference was a rough, uneven surface with hard edges. The peritoneum over the whole of the liver was much thickened, as were also the folds of the lesser omentum, which were covered with thick layers of puriform lymph. The spleen was enlarged to three times its normal size, and its peritoneal coat was thickened and covered with lymph. The peritoneal cavity contained eleven ounces of opalescent sticky fluid, with small flakes of inflammatory material. The right lung was collapsed to one-third its normal size, and covered over its whole surface with a layer of puriform lymph. The whole of the lung was congested, and the lowest lobe and greater part of the middle lobe presented an appearance of purulent infiltration. The liver was considerably enlarged and adherent to the diaphragm throughout its upper and posterior surfaces. At one point the diaphragm was partially eroded by advancing suppuration. The right lobe was occupied by three abscesses; the largest one, the one aspirated, was full of pus similar to that aspirated, and was about the size of an eight months' fetal head; another, anterior to and below this, was about the size of a lawn-tennis ball; and the third, internal to the smaller one, was about the size of an almond. The left lobe also contained three abscesses in close juxtaposition to one another, the largest being about the size of a walnut. Surrounding each of these abscesses were a large number of small white patches, which were in reality points of suppuration, about to coalesce with the larger ones. The pus contained neither staphylococci, nor streptococci, nor amœba coli, but there were large numbers of ordinary small micrococci, and a number of small bacilli with rounded ends, which stained by Gram's method, and which presented a beaded appearance.

***Multiple Diabetic Neuritis.***—At a recent meeting of the Edinburgh Medico-Chirurgical Society, FRASER and BRUCE (*British Medical Journal*, No. 1795, p. 1149) reported the case of a man, thirty-six years old, coming under observation with symptoms of diabetes. There was no anemia, although there were tuberculous changes in the upper lobes of both lungs. The daily amount of urine was 194 ounces with 7187 grains of glucose, and the specific gravity was 1038. After resting in bed for a few days the quantity fell to 132.5 ounces, with 738 grains of urea and 3862 grains of glucose, and on a restricted diet to 120 ounces, with 657 grains of urea and 2736 grains of glucose. Later, pains in the ankles and legs appeared, but without numbness. Thermal and electric sensations were normal. The knee-jerk was absent on both sides. Station was steady. There was central scotoma on the right side. Despite increase in weight, no real progress was made, and finally the patient was unable to leave his bed. Dyspnea, orthropnea, and death soon followed. Upon post-mortem examination tuberculous changes were found in the upper part of each lung. There was a marked area of degeneration in one of the optic nerves. The medullary sheath was quite gone and there was parenchymatous degeneration, although the axis-cylinder was still mostly present. Between the muscular columns of the gastrocnemii there were little patches, consisting of rows of black dots, such as are seen in the muscles of the heart in fatty degeneration. These rows of dots appeared to be in the substances of the fibers, binding these together. The striation was still present.

***Malposition of the Sigmoid Flexure in the Right Iliac Fossa.***—MUNDELL (*Dominion Medical Monthly*, vol. v, No. 5, p. 39), in demonstrating the operation for appendicitis upon the dead subject, found the usual seat of the cecum occupied by the sigmoid flexure, which, passing transversely across the fourth lumbar vertebra, formed a bend in the right iliac fossa, and then ran down into the pelvis on the right side. On tracing the parts upward the cecum was found lying above the bend of the sigmoid, and on a level with the upper border of the fourth lumbar vertebra, the appendix lying about one inch

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higher up and opposite the middle of the third lumbar vertebra. The sigmoid mesocolon blended with the right extremity of the vertebral attachment of the mesentery, and a ridge of the peritoneum ran from the outer side of the sigmoid bend along the cecum above, so that on introducing a finger into the original incision the sigmoid and the cecum above it appeared to be a continuous piece of bowel. The cecum and the ascending colon were together only three-and-a-half inches in length. The appendix was found lying coiled up on the left posterior aspect of the cecum, in one of the retrocecal fossæ, there being two. In such a case as this there might be considerable trouble in diagnosis in case of disease of the appendix, and likewise of the sigmoid flexure. Reference is made to a second case in which the sigmoid encircled the left iliac fossa, lying close behind Poupart's ligament, then running back along the margin of the pelvis across the sacrum to the right side, and then down into the pelvis.

*Abortive Akromegaly with Macroglossia.*—At a recent meeting of the Société Médicale des Hôpitaux, CHAUFFARD (*Le Mercredi Médical*, 1895, No. 29, p. 345) reported the case of a house-painter, thirty-two years old, who came under observation on account of difficulty in breathing, and who presented a striking enlargement of the tongue. The organ was 7 centimeters long and 21 millimeters thick, and extended beyond the lower lip 5½ centimeters. Neither the lips nor the isthmus of the pharynx was hypertrophied. For two years it had been noticed that the inferior maxilla was increasing in size. The teeth of the upper jaw had mostly fallen out and those of the lower were in advance of the line of the upper. The frontal bone was low and presented marked transverse ridges. The nose had increased in thickness in several months. The cranium was dolichocephalic, without hypertrophy of its sutures or of the frontal sinus. There was slight cervico-dorsal kyphosis, with compensatory lumbar lordosis. The penis had become thicker and longer. The thyroid gland was small and there was no evidence of persistence of the thymus. Vision was lost in the left eye. The pupillary reactions were feeble. Upon the right there was myopia, with recent slight posterior staphyloma. The papilla was hyperemic and the retinal pigment atrophic. Upon the left there was deficiency of color of the external segment of the papilla. There were, besides, headache and increased frequency of micturition. The extremities presented no change. The case is believed to be an undeveloped one of akromegaly.

*Experimental Ulcerative Endocarditis.*—At a recent meeting of the Berlin Society for Internal Medicine MICHAELIS (*Deutsche medicinische Wochenschrift*, 1895, No. 31, Supplement No. 19, p. 131) reported that in the course of certain experimental observations upon immunity to pneumococcus-infection, made in conjunction with G. Klemperer, ulcerative endocarditis developed in one of the animals (a dog) employed. The animal had for four months been treated with increasing doses of an intensely virulent culture of pneumococci. It appeared extremely ill five days after the last intraperitoneal injection, and death followed a day later. Upon post-mortem examination marked ulcerative endocarditis was found, perfectly comparable to that observed in man, and bacteriologic examination disclosed in the valves involved pneumococci in considerable numbers, and similar organisms were cultivated from blood removed from the heart under suitable aseptic precautions.

## THERAPEUTIC NOTES.

*In the Treatment of Chronic Bronchitis* DUBOURG (*Journal de Médecine et de Chirurgie*, August, 1895, p. 591) has employed a combination of guaiacol and iodoform by hypodermic injection:

| | |
|---|---|
| Take—Guaiacol | 2.5 grms. |
| Iodoform | 0.5 grm. |
| Sterilized olive-oil | 50 grms. |

The iodoform is first dissolved in ether, a portion of which is allowed to evaporate and the residue is added to the guaiacol and the oil. Iodoform thus treated dissolves perfectly and the result is a clear and limpid liquid. Each cubic centimeter contains one centigram of iodoform and five centigrams of guaiacol. Two cubic centimeters are injected on the first days, and from three to three-and-a-half on the following days. Under the influence of this treatment expectoration is at first increased but subsequently diminished; other symptoms, cough, dyspnea, loss of appetite, etc., gradually subside.

*In the Treatment of Favus* the hair of the affected part is cut as short as possible and the following ointment applied upon linen:

| | |
|---|---|
| ℞.—Floris sulphuris | 15 grms. |
| Sodii carbonatis | 4 " |
| Picis liquidi | 50 " |
| Tincturæ iodi | 50 " |
| Axungiæ porci | 100 " |

After the lapse of twenty-four hours the affected parts are cleansed with warm soap-water and application of the ointment renewed. The treatment is intermitted as soon as the skin desquamates freely, when resort is had to a salicylated zinc-ointment. A cure may be expected in the course of three weeks.—*Rev. de Thérapie*, No. 13; *Corresp.-bl. f. Schw. Aerzte*, 1895, No. 15, p. 480.

*The Treatment of Diabetes Mellitus with Uranium Nitrate.*—At the recent meeting of the British Medical Association, WEST (*Medical Press and Circular*, No. 2936, p. 153) reported the employment of uranium nitrate in doses of from 5 to 15 grains three times a day, in the treatment of a number of cases of diabetes, with the result of reducing the quantity of urine excreted and diminishing the proportion of sugar to a very small amount. It was repeatedly shown that these results followed the administration of the drug, with a return to the previous conditions upon the withdrawal of the drug. The larger doses yielded the best results.

*For Summer Diarrhœa.*—Take

| | |
|---|---|
| Phenyl salicylate | 1 dram. |
| Bismuth salicylate | 3 drams. |
| Oil of gaultheria | 12 minims. |
| Chalk-mixture | 3 fluidounces.—M. |

Dose: Two fluidounces every two hours. Opium may be added if there is much pain. GRIFFITH—*Phila. Polyclinic*, vol. iv, No. 34.

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*A WEEKLY JOURNAL*

OF MEDICAL SCIENCE.

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## THE TREATMENT OF MALARIAL HEMATURIA.

ONE of the most interesting, and, to those who have to deal with it in practice, one of the most important therapeutic problems, is the treatment of malarial hematuria. This has been discussed in all parts of the world, and nowhere has a satisfactory conclusion been reached. How the case stands in this country can be learned from a recent report, in which it is shown that one-hundred-and-seven physicians in the Southern States use thirty-two remedies in the treatment of the disease. How many theories of the disease and its cure are entertained by the contributors to the report cited does not appear, but it is safe to say that the number does not fall far short of the number of drugs. The most recent contributions to the subject come from the West Coast of Africa *via* Germany. As usual, they are diametrically opposed on a fundamental point.

Plehn[1] contends that in the hematuria of the West Coast quinin is not only useless, but that it actually causes the hematuria—a statement that has been made in other times and places. On the other hand, Küchel[1] maintains that quinin is a specific, but only when given in large doses. He quotes Steudel, who gave doses of from 8 to 12 grams (2–3 drams) of quinin in a day, repeating the dose (1 gram=15 grains) in case vomiting occurred soon after it was taken. It is not surprising to learn that Steudel had 1 case of amaurosis out of 9 cases so treated, blindness occurring on the third day, after 18 grams (270 grains) had been taken. Küchel himself had 1 case of quinin-blindness out of 4 cases treated, in the person of a small anemic woman, who took 8 grams (2 drams) in two days. To offset the statement of Plehn, that quinin causes hemoglobinuria and hematuria, Küchel mentions a patient of Steudel who took one-hundred-and-twenty-three grams (nearly 4 ounces) of quinin in twenty-three days, an average daily dose of 5½ grams (82 grains), and during this time the hemoglobin of the blood rose from 16 to 64 per cent., the red corpuscles from 1,600,000 to 4,458,000 per cubic millimeter.

The first thought that strikes one in reading these articles is the singular lack of judgment of the writers, lack of judgment in practice as well as in drawing conclusions. Plehn gave doses of 1 or 1½ grams (15–22 grains) of quinin a day by the mouth, dry, or rarely 2 grams (30 grains) per rectum. Even if complete absorption took place, the doses were comparatively small; but, as a matter of fact, from the nausea and the "intractable vomiting" noted in the report, even these small doses were of little more benefit to the patient than if they had been in the doctor's chest. If Steudel's patients absorbed more quinin than those of Plehn, it was only because they were loaded with the drug. That they would absorb it was impossible of prediction. If absorption was good, amaurosis was only too likely to follow. That one patient improved under the highly poisonous dose of 123 grams (nearly 4 ounces) in twenty-three days, only proves that the absorption in that case was relatively poor or absent. Evidently Plehn's patients were more likely to escape under such treatment than were those of Steudel. Plehn does not say why he used such uncertain methods of administration, but Steudel admits that he avoided the hypodermic method because he feared abscesses and tetanus! Küchel had this same fear, though in one case he gave 1 gram (15 grains) hypodermically. Küchel gives an ingenious explanation of the results obtained by

[1] Plehn: Berliner klinische Wochenschrift, 1895, Nos. 25, 26, and 27.

[1] Küchel: Loc. cit., No. 28.

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Plehn and by so many others, in which the administration of quinin seemed to provoke a fresh paroxysm of fever. He suggests that in such cases the amount of quinin absorbed is too small to check the development of the parasites, but rather acts on them as an irritant, increasing their activity, and so causing the results observed. This explanation is worthy of experimental proof.

In speaking first of the therapeutics of the writers quoted we have passed over the important matter of diagnosis. It is a curious fact that they, like many others, speak of the diagnosis of malarial hematuria as being very simple, although they also show that it is often difficult, and even if the ordinary clinical diagnosis does seem clear, it is necessary in these days to confirm it by the demonstration of the parasites. This is imperative when questions of treatment are under consideration. Not only must the presence of the hematozoa be proved, but the form or variety and the relative numbers of the parasites must be mentioned, in order to convey an idea of the indications for or the difficulties of treatment. It is true that Plehn found parasites in the blood in his cases, but his description of the organisms is insufficient. One point comes out clearly, that whereas the parasites he describes closely resembled those found in severe cases in Rome, the treatment carried out was of a kind recognized as inefficient by Italian physicians. Plehn says that the parasites of the Cameroons are not affected by quinin; but, as it is doubtful whether he ever brought them in contact with quinin, the statement is not pertinent.

It is not our intention to speak here of the treatment of malarial hematuria or hemoglobinuria in detail, but rather to emphasize certain points concerning what may be called the specific treatment. In cases such as the German-African physicians describe, and which are similar to cases occurring in various parts of the United States, there is a rapid destruction of red blood-corpuscles by the pathogenic parasite. The loss of blood from this cause is infinitely greater than that from the kidneys. In actual cases the daily loss of red blood-corpuscles in the vessels has been found equal to the direct abstraction of two-and-a-half pints of blood.

Besides the destruction of blood, the parasites produce other dangerous effects, largely toxic in character—effects which, so far as we know, are best treated by removing the cause. In order to do this quinin must be so given as to enter the circulation, and the best way of effecting this is the hypodermic method or the intravenous method as improved by Baccelli. The quinin must be given in sufficient doses, not less than 1 gram (15 grains) being taken within a short time. Doses up to 3 grams (45 grains) in a day may be used, but it is doubtful whether larger doses are proportionately beneficial, while they are certainly more dangerous. The remedy is more efficient if given at such a time as to act on the parasites in their earliest stage of development, a point that can be most accurately determined by microscopic examinations of the blood, and only in this way in those cases in which the course of the disease is irregular. The quinin, even in the doses mentioned, may exert injurious effects on the kidneys. This is unfortunate, yet it is not unique in therapeutics. No surgeon, for example, hesitates to operate when operation promises to save life, merely because he fears the effects of the anesthetic on the kidneys; yet the conditions in pernicious malaria are not dissimilar.

The fact that the malarial disease often undergoes spontaneous recovery does not essentially alter the problem, because such recovery does not always take place, nor can it be predicted in any given case. Moreover, the dangerous effects of quinin feared in these cases have never yet received scientific demonstration, all the results attributed to the drug having been observed in cases treated without quinin. After the specific action of the quinin has been exerted, as determined by the condition of the blood, the drug should be stopped. In practice this will usually be in three or four days, yet it may be earlier. The remedy is not needed at this time for its effect on the parasites; its tonic effect may be spared; and even in small doses it may have an injurious effect on the kidneys without any corresponding benefit. During this time, as well as earlier, symptomatic treatment is often indicated, and in this a number of drugs, as well as other measures, may be necessary. At the same time thermometric observations and examinations of the blood must be carried on, in order to give the earliest warning of a possible revival of the parasite—to be again followed by the administration of the specific.

We do not mean to say that such time-consuming methods as have been named are to be generally used. It would be well if they could, as they would give to medical therapeutics some of that pains-

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taking accuracy which has done so much to elevate surgery to the high plane it now occupies. Yet, in order to show the value or the want of value of any form of treatment, the procedures mentioned must be followed; otherwise the same contradictions and the same errors as those that we have just criticised will recur indefinitely.

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## *REPORT OF THE PENNSYLVANIA STATE COLLEGE FOR THE YEAR 1895.*

IN this pamphlet-volume of 376 pages, containing a large amount of matter interesting only to agriculturists, and representing much careful and intelligent investigation, we note as of special medical interest an article of over thirty pages, contributed by Dr. Leonard Pearson, on tuberculosis in cattle. This presents a comprehensive summary of the extent of disease in the State College herd, and is especially valuable in view of the care that has been taken to ascertain the dangers and fallacies of the tuberculin-test.

After a brief review of the general morphology and biology of the *Bacillus tuberculosis*, Dr. Pearson points out that all domestic animals are subject to the disease, but with different degrees of susceptibility, neat cattle being most susceptible, dogs and cats the least. In passing we may note a thought as to how far this high insusceptibility to tuberculosis among the animals that are most closely associated with the household has been developed under the principle of natural selection, which has thinned out those forms that were not very resisting. Whatever may be the reason, it is fortunate that the animals which are so frequently brought into close contact with young children, sharing their playing as well as their sleeping hours, should be unlikely to suffer from so dangerous a disease.

Concerning the conditions that render dairy-cattle liable to tuberculosis, Dr. Pearson distinguishes heredity, though of course not in the sense in which that word was formerly understood, as a direct inheritance of the disease, but merely as giving weakened vital function; peculiar conformations, of which the most important is that in which the animal has a shallow and usually flat chest, with long legs; irregularities in feeding, especially overfeeding; crowded and unventilated stabling; and lack of exercise.

Cleanliness is, of course, an item in the hygiene of cattle, and we are glad to see that the excessive production of milk is indicated as a source of danger. In these days, when the demands of the public, and, unfortunately, the theoretic views of some sanitary chemists, incline toward requiring very high grades of milk, the tendency is to manage cattle so as to secure these somewhat artificial results, and produce a milk of which it might be said, if the subject were not rather too momentous for levity, that it is rich but not respectable. Under the pretence of elevating the standard of dairy-cattle, more than one sanitary official has endeavored to secure by law such limitations in the composition of milk as will certainly tend to develop artificial conditions and liability to disease. Too much publicity cannot be given to Dr. Pearson's language: "The aim should not be to discover how much it is possible for a cow to produce, but to discover how much she can produce with a reasonable amount of exertion, and without detriment to her constitution." On the other hand, it is pointed out that a return to the conditions closely approximating the wild state will be too severe a change for a race that has been through many centuries subjected to artificial conditions.

After discussing concisely, but in sufficient detail, the conditions of infection, and the general symptoms of tuberculosis, Dr. Pearson explains fully the tuberculin-test as applied by him in this State. He employed the preparation made by Koch, as well as that made by the Bureau of Animal Industry in Washington, and by the Agricultural Experiment-Station at Newark, Delaware. No important difference was noted in the efficiency of these samples, but it is pointed out that no tuberculin should be used unless prepared by those known to be competent. "For purposes of injection the tuberculin is diluted with a 1 per cent. solution of carbolic acid in freshly boiled distilled water to a strength of 10 per cent. . . . The exact amount to be injected must depend somewhat upon the size of the animal, and also upon its physical condition. If the subject is emaciated and a probable victim of tuberculosis, the amount administered should be larger than that given to an apparently healthy animal." It is not necessary to go into the details of administration, thermometry, and complications, which are fully set forth; but it may be noted that up to the present time the injection can be utilized only for the detection of the disease, not for its localization. It is hoped that further observation will develop some method of ascertaining at least the comparative extent of the disease. A considerable

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elevation of temperature after the injection, which, as is well known, is the important evidence of the existence of tuberculosis, may occur without the corresponding systemic manifestations observed in fever from other causes.

The report strongly favors the view that tuberculin is a very reliable agent for determining the presence of tuberculosis in cattle; that when properly prepared and judiciously handled it does not produce disease; and that it is the only known means whereby a positive diagnosis can be made in the early stages of the affection. So far from accepting the view that its employment will produce the disease in susceptible animals, it appears that some curative effects have been observed.

It is scarcely necessary to discuss further the question of the danger to the community from the unnoticed existence of tuberculosis in dairy-cattle. Indeed, statistical inquiries in some of the larger American cities seem to show that so general has become the information on this point that the use of milk as an article of food has been checked. The results in the Pennsylvania examinations confirm the view that a common mode of infection, especially in children, is through the employment of unsterilized milk from tuberculous cows, and an interesting case is noted by Dr. Pearson, which was reported at the Paris Academy of Medicine: "In a young ladies' boarding-school twelve girls presented symptoms of tuberculosis, and of these five died. Since all of these girls had healthy parents, and especially since all of them showed well-marked intestinal tuberculosis, the food was suspected. It was then found that the cow that had for years supplied the school with milk was tuberculous, and the autopsy showed that the viscera and the udder were badly affected." It is obvious that until a much more extensive examination of the dairies supplying our cities can be instituted there will be considerable liability to the distribution of tuberculosis in this manner. Official methods are not without disadvantage, and it is preferable that milk-producers and milk-purveyors should be brought to realize that they are responsible for the quality of the article which they furnish, and must institute careful, scientific inspection for themselves. The leaven of this unofficial supervision is already at work. We recorded some time ago the establishment under private auspices of regular and careful veterinary, bacteriologic, and chemic examinations of a certain dairy, and we are glad to learn that this system exists in various places. We are also pleased to note from a recent circular that a system of supplying Pasteurized milk, as distinct from sterilized milk, has been established. This milk is treated in a routine manner, so as not to be heated above 167° F., the operation being conducted in sealed cans. It is now recognized that milk sterilized by prolonged heating at the boiling-point of water is in many cases quite unsatisfactory as food for young children.

## EDITORIAL COMMENTS.

*The James E. Reeves Fund.*—It gives us more than ordinary pleasure to announce the completion of the fund for the reimbursement of DR. JAMES E. REEVES, of Chattanooga, Tenn., for the expenditure to which he was subjected in his manly and victorious fight against quackery in the defence of the suit of Amick *vs.* Reeves. The following is the bill of expenses:

| | |
|---|---|
| Attorneys' fees | $ 100 00 |
| Trip to Cincinnati | 30 00 |
| Stenographic report | 35 00 |
| Printing pamphlet | 60 00 |
| | $ 225 00 |

The contributions to the fund were as follows:

| | | | |
|---|---|---|---|
| Dr. A. Vander Veer, | $ 35 00 | Dr. A. A. Eshner, | $ 1 00 |
| William Wood & Co., | 25 00 | Dr. G. R. Fowler, | 1 00 |
| Dr. F. Forchheimer, | 15 00 | Dr. H. M. Haskell, | 1 00 |
| Dr. N. P. Dandridge, | 11 50 | Dr. W. T. Hope, | 1 00 |
| Dr. P S. Connor, | 10 00 | Dr. Thomas Hubbard, | 1 00 |
| Dr. George M. Gould, | 10 00 | Dr. P. M. Jones, | 1 00 |
| Dr. William Osler, | 10 00 | Dr. G. W. H. Kemper, | 1 00 |
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| Drs. Davis & Davis, | 5 00 | Dr. B. F. Miller, | 1 00 |
| Dr. John B. Hamilton, | 5 00 | Dr. D. E. Nelson, | 1 00 |
| Dr. J. H. Kellogg, | 5 00 | Dr. D. L. Page, | 1 00 |
| Dr. George Peck, | 5 00 | Dr. C. R. Pickering, | 1 00 |
| Dr. Edmond Souchon, | 5 00 | Dr. Miles F. Porter, | 1 00 |
| Dr. R. J. Trippe, | 5 00 | Dr. R. T. Reeves, | 1 00 |
| Dr. J. T. Whittaker, | 5 00 | Dr. J. Robinson, | 1 00 |
| Anonymous, | 4 00 | Dr. P. D. Sims, | 1 00 |
| Thomas G. Allen, | 2 00 | Dr. Fred. B. Stapp, | 1 00 |
| Dr. S. Solis-Cohen, | 2 00 | Dr. S. W. S. Toms, | 1 00 |
| Dr. George E. Jones, | 2 00 | Mr. Fred. Volz, | 1 00 |
| Dr. N. W. Leighton, | 2 00 | Dr. Voigt, | 1 00 |
| Drs. Spiller and Zurmtey, | 2 00 | Dr. B. S. Wert, | 1 00 |
| | | Dr. J. P. West, | 1 00 |
| Dr. C. G. Comegys, | 1 50 | Dr. J. E Copeland, | 50 |
| Dr. G. W. Drake, | 1 50 | Dr. S. A. Davis, | 50 |
| Dr. G. M. Ellis, | 1 50 | Dr. E. J. Doering, | 50 |
| Dr. W. F. Taylor, | 1 50 | Dr. E. B. Doolittle, | 50 |
| Dr. E. C. Anderson, | 1 00 | Dr. J. E. Miller, | 50 |
| Dr. Theodore G. Davis, | 1 00 | Dr. A. Tait, | 50 |
| Anonymous, | 1 00 | Dr. H. B. Tanner, | 50 |
| Dr. A. Cornish, | 1 00 | Dr. M. Walker, | 50 |
| Dr. Robert W. Earle, | 1 00 | | |
| Dr. John Elfers, | 1 00 | | $ 225 00 |

This list includes 65 contributions from 41 cities representing 17 States, the District of Columbia, and the Dominion of Canada.

The medical profession is to be warmly congratulated

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upon the outcome of this whole matter, and it is a source of especial gratification that DR. REEVES has been so substantially supported by such a considerable number of men. We have here an evidence that the American medical profession is sound at heart, though its body may harbor some destructive parasites. How great and decisive was the victory may be appreciated when it is stated that the Amick Company had set apart the sum of $30,000 as a prosecuting-fund with which to punish in the courts every man who dared denounce its nefarious practices. The success of the suit of Amick *vs.* Reeves would have emboldened all forms of quackery and spread universal intimidation. As matters stand, the whole army of quacks has been brought under the lash and put upon the run. Let us hope that the victory may strengthen the hands of the trustees of the *Journal of the American Medical Association* and of the publishers of all medical journals in the exclusion of unethical advertisements, so that our current literature may be freed from the contamination of quackery.

In conclusion, we cannot forbear quoting a paragraph from a letter written by DR. REEVES:

"Such an unexpected reward for the simple performance of one's duty swells my heart with inexpressible gratitude. Indeed, now that I am growing old, it is worth more of consolation to me than all else I have earned in my struggles for usefulness in our adorable profession."

***The Utilization of Waste Products.***—There is a singular similarity between the ethicolegal and the sanitary problems of the body politic. In both the disposal of waste is a prominent factor. In the one realm it is a question of the treatment of the criminal and the pauper; in the other that of the pathogenic germ and the saprophyte with his culture-media. The earliest methods of management are identical in both cases. The criminal is knocked on the head or banished to the next county, or compressed into certain city purlieus, according to the magnitude of his crime; while the garbage is hidden under the rushes on the floor, thrown out of the door, or dumped in the nearest hollow. "Out of sight, out of mind," seems to be the motto of this stage.

Very shortly, however, it is discovered, by most vivid and bitter experience, that both the criminal and the garbage have a sort of "boomerang" quality, and are likely to "come back at" the community aforesaid, even from Botany Bay and the extreme limits of the back yard. So a system of repression and "deterring" is entered upon. Penalties are made still more severe; branding and mutilation are practised to make the evil-doer a living object-lesson of the unprofitableness of crime; long terms of imprisonment are imposed and the ends of the earth ransacked for places of penal exile.

Sewage is at the same period run into the nearest stream, or buried in the ground, or evaporated and burned; in a word, gotten rid of at any cost. Finally, it appears to dawn upon both legislators and sanitarians that, after all, there may be some value to the community in even these remnants; some sense of decency in the criminal, the pauper, the foundling; some commercial value in the offal and sweepings of our city streets. The latter are now used to grow the city's vegetables and fertilize and irrigate her waste lands, while the former are either made to earn their own living in some prison-factory or are reformed into useful members of the community.

Especially is this true of that large body of street-arabs, destitute children, and waifs and strays of every description that swarm in the slums of our large cities. These are no longer permitted to grow up in idleness, ignorance, and crime, to become enemies of the commonweal, for it has been proved beyond doubt that the young of the human species, however unfavorable its parentage, displays a strong tendency to revert to the sturdy, healthy, animal virtues of its prehuman ancestors. If it be given favorable environment, though there will be many a failure, in the great majority of cases it will respond promptly and permanently.

One of the first to grasp this truth firmly and effectively was the renowned Dr. Charles Barnardo, whose fiftieth anniversary is now being celebrated in London. Thirty years ago, a young medical student at a hospital in the very heart of the notorious Whitechapel district, he gave up his professional and social prospects to devote himself to the rescue of "these little ones." And how he has succeeded all the world now knows. "From a little one-roomed refuge his work has grown into dozens of institutions for sick, destitute, and neglected children of both sexes, where they are carefully schooled and trained; and thousands of what were once starving and homeless waifs are to-day doing their duty in that state of life, on both sides of the Atlantic, in which Dr. Barnardo's unceasing efforts have succeeded in placing them—an army of young, skilled mechanics, artisans, and domestics, of which any country might justly be proud." Of all the sick and neglected waifs that have been sent to him from almost every part of the world, not one has ever been refused admission to his homes. He had practically no money of his own with which to carry on the work, but his noble enthusiasm was infectious, and contributions poured in on all sides and from all classes. Such a man, indeed, deserves well of his country, and we are glad to note that a fitting testimonial is to be presented to him on the celebration of his coming anniversary.

The gain to the community from his achievements has been simply incalculable, and the State owes him as heavy a debt of gratitude as do the waifs and outcasts he has befriended. Probable paupers, possible criminals, and certain burdens upon the country have been converted into not only honest and self-supporting, but actually productive members of the body politic. It is a pleasant thought that it was while training himself for the noble profession of medicine that the inspiration came to him. The "medical student" bears a hard name, but here is one striking demonstration of how little he deserves it, to say nothing of a thousand less illustrious ones.

***Act of the Pennsylvania Legislature relating to Contagious Diseases.***—The Philadelphia Board of Health has just issued for the information of the public copies of the act of Assembly approved by the Governor June 18, 1895, and entitled "To provide for the more effectual protection of the public health in the several municipalities of this Commonwealth." The act relates entirely to the management of contagious diseases, and seeks to emphasize previous legislation on the subject. The penalty for failure to notify the health-board of the ex-

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istence of cholera, smallpox, diphtheria, membranous croup, scarlet fever, typhoid fever, typhus fever, yellow fever, cerebro-spinal fever, relapsing fever, leprosy, varioloid or diphtheric croup, consists in a fine of not less than five dollars nor exceeding one-hundred dollars, and in default of payment imprisonment for not more than sixty days. The previous penalty had been a "fine not exceeding fifty dollars."

According to the new act, children living in a house in which a person has suffered from diphtheria, smallpox, scarlet fever, cholera, varioloid, diphtheric croup, membranous croup, leprosy, typhus fever, yellow fever, or relapsing fever, or children or other persons who have suffered from one of the diseases named, are forbidden attendance at school (public, private, parochial, or Sunday) for a period of *thirty* days after the discharge of the person last afflicted, either by recovery or death, or his removal to a hospital, and the thorough disinfection of the premises. Heretofore the period of time varied from two weeks for diphtheria to three weeks for scarlet fever. The new act not only makes thirty days the limit, but further provides that a city may designate that only a certain person shall issue a certificate allowing a child to return to school. In Philadelphia the medical inspector alone can issue the necessary permission.

In Section 19 we find that the health-authorities of a municipality are "authorized and empowered to establish rules and regulations regarding the isolation of persons," disinfection of bedding, fumigation, etc., "as they may, in good faith, declare the public safety and health demand, which rules and regulations they may from time to time alter and amend, and such rules and regulations shall have the same force and effect as though embodied in this act."

This gives the board of health of a city almost absolute power, whereas formerly it could only pass resolutions or have ordinances made through city councils. Under the new law any rule, relating to contagious diseases at least, can be put into operation without waiting for councils, mayor, or legislature, and the penalty for violating such a rule or regulation is the same as that given in the case of failure to report a contagious disease; although before such a fine can be levied the person accused must be convicted of the offence before a magistrate. The health-authorities of Philadelphia are the Mayor, who is *ex-officio* a member of the Board of Health; the Director of Public Safety, who is also *ex-officio* a member of the board and its president; and five other persons appointed by the Mayor and confirmed by Select Council; who constitute the Board of Health proper. The health-officer, though receiving his commission from the Governor of the State, is subject to the rules and regulations of the Board of Health, and is apparently subordinate to this board.

Under this new act the health-authorities, to cite an extreme case, would have the power to order the destruction of a house if they considered it infected; they could enter sweat-shops and destroy the articles found therein whenever they deemed it necessary and without compensating the owners of such articles for their loss. The provisions of this act relate to all the municipalities of the State.

***Nordau's Disease.***—We are decidedly averse to giving "that eminent degenerate," Nordau, so much of what he is desirous of having—free advertising—as is implied by a second allusion to his work, but we wish to speak of one aspect that has been admirably suggested rather than clearly pointed out in a volume of short stories, entitled *The Salt of the Earth*. We are also glad to say that these stories are by a physician, Philip Lafargue (his real name is Dr. J. H. Philpot), of London. The fundamental criticism of Nordau and Nordauism is that no one, however subtle and powerful his intellect, can ever reach *la vraie vérité*, the truest truth, by the intellect alone, and especially if what emotional bias he has is that of contempt and indignation. It is by the aid of sympathy that the most perfect mental picturing, the most complete mental diagnosis, can be made. The attitude of scorn of the object studied is a poor one, and leads only to partial and imperfect results—just such results as Nordau has reached. Not only this, there is illustrated in his book the fundamental intellectual sin of most of modern literature—the use of intellectual power selfishly, not to present the uncolored truth, but to produce intellectual fireworks, to flash and dazzle, to attract attention to self. Already we hear that the learned author is under contract to write a novel and also a play. There yet remains the still more damaging point of criticism, the sorry fact that the author, who is a physician, not only does not study the disease, let us call it with peculiar appropriateness, *Nordau's disease*, scientifically, *i. e.*, without bias or coloring, without propossession, but it is most certain that from the beginning his results have been worked up to, and that violence has been done to his facts in order to make them prove his desired conclusion. The idea of calling Ruskin and Wagner and Rosetti degenerates! This is one of many instances in which critical vanity and pessimistic egotism peep about under the huge legs of genius to find themselves a dishonorable grave. Even Rossetti has written single stanzas worth more than the entire volume of his scorner. Finally, to cure not to curse, to sympathize not to anathematize, is the ideal of the true physician. This, *Doctor* Nordau has not chosen to do; but this Dr. Philpot has chosen, and we write to commend the book that is not the product of a brain cynical and pseudo-scientific, and that therefore needs all the more to have its merits praised.

***The Management of Infants during the Heated Term.***—The Board of Health of Philadelphia has published for distribution a pamphlet giving special rules for the management of infants during the hot season, based upon recommendations made by the Philadelphia Obstetrical Society a number of years ago. These rules are very simple, and should be familiar to every mother, yet many do not possess even a tithe of this knowledge. Rule 8 directs that "if the cow's milk is not known to be pure no water should be added." It would have been better to insist upon the use of pure milk, and to have secured such assurance by having samples of the milk tested free of charge under the supervision of the health-authorities. While the term "sterilization" is not specifically used, the directions to "scald the milk as soon as it comes and to put away in the coolest part of the house—on ice if it can be afforded"—are probably as plain as can be given in a statement intended for universal comprehension. It might not have been out of place to state in a few terse sentences in what ways milk is usu-

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ally contaminated, in order that these several sources might be avoided. The reference to condensed milk made in Rule 9 is in disregard of recent investigations upon this subject; it would have been better to recommend instead some other modification of cow's milk.

There is a need for informing the public through some official source how to put into practice recognized sanitary principles, and the Philadelphia Board of Health is to be commended for its efforts in this direction.

In the absence of medical men from boards of health, it would, perhaps, be well for such boards to invite from time to time suggestions from representative medical bodies as to the means to be adopted by the community to prevent disease, and such recommendations should be couched in simple and unambiguous language, and printed for general distribution. The Philadelphia Board fortunately includes two medical men, one of whom is its president.

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***Traffic in Misery and Folly.***—There are many great advertising dispensaries and cure-alls. None is more business-like than the one to which we wish to refer. This concern advertises in a systematic and orderly manner in the secular and daily press of the country. It has a large corps of letter-writers and correspondence-clerks. In its safes it has preserved the letters and confessions of almost a million miserable and foolish men and women. This correspondence is tabulated and is followed by a record of the treatment, and, what is of more moment, of the contract and the moneys paid on it.

Not long ago a like concern failed in a city 800 miles distant. Among the most valuable assets of the defunct concern were similar records of 200,000 dupes. These the first great business-house referred to bought of a speculator, agreeing to pay fifty cents apiece for each new name of a living person. In checking up the lists, 60,000 of the 200,000 were found to be on their books already.

Perhaps all readers of the newspapers have noticed an advertisement for a lock of hair, upon the receipt of which the advertiser agrees to tell the sender's fortune and cure his disease. The author of this "fake" lately retired from business, and his correspondence, including over 600,000 locks of human hair from as many heads, was sold to an advertising concern.

These are simply samples of business principles applied to medicine.

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***Surgical Shock as a Cause of Death in Women.***—Among the causes of death mentioned in the report of the Registration Department of the Philadelphia Health Office for 1894, "surgical shock" is credited with seventy-five deaths; of which number twenty-one occurred among males and fifty-four among females. Examining the reports of previous years we find:

In 1890 surgical shock caused the death of 6 males and 12 females; 1891, 9 males, 21 females; 1892, 8 males, 43 females; 1893, 19 males, 43 females.

Whether women are more frequently operated upon than men or whether the operations they undergo are more liable to result in shock, or whether women because they are women are predisposed to shock, are questions that naturally suggest themselves after glancing at the statistics cited. Perhaps the gynecologist can throw some light on the subject. But whatever the explanation, it is desirable that the return of death should mention the kind of operation from which the shock resulted, and that the term "surgical shock" as a cause of death be relegated to the limbo of insufficient medical terms, as "heart-failure" and "apnea" have been.

## SELECTION.

### *SUICIDE.*

PROFESSOR SIKORSKI, of the University of Kief, writing in the *Kievlianin* upon the psychology of the Russian people, brings forward some interesting statistics concerning the frequency of suicide in the different nations of Europe. According to these figures, the death-rate from suicide per million living is in Saxony 311, in France 210, in Prussia 133, in Austria 130, in Bavaria 90, in England 66, while in Russia it is as low as 30. Further, it is found that during the last thirty years the suicide-rate has in Russia remained stationary, while in all other European countries it has increased by 30 or 40 per cent. The exact significance of figures such as these, relating to so complex a phenomenon as suicide, is not easily brought out. Few, however, will be disposed to question the assertion that much of the explanation of the low rate in Russia is to be found in the patience and long suffering of the Russian peasant under even the worst misfortunes. Among other characteristics Professor Sikorski also finds a certain indecision of character which fears to say a word or do an action which shall not admit of retreat or withdrawal. Crime is comparatively rare in Russia; thus, the number of persons tried for murder per million living in the year 1887 was in Italy 96, in Spain 55, in Austria 22, in France 14, in Russia 10, in Germany 9, and in England only 6.—*The Lancet.*

## REVIEWS.

THE ELEMENTS OF PATHOLOGICAL HISTOLOGY, WITH SPECIAL REFERENCE TO PRACTICAL METHODS. By DR. ANTON WEICHSELBAUM, Professor of Pathological Anatomy and Director of the Institute of Pathological Anatomy in the University of Vienna. Translated by W. R. DAWSON, M.D. (Dublin), Demonstrator of Pathological Anatomy in the Royal College of Surgeons, Ireland, etc. 8vo, pp. xv, 456. London and New York: Longmans, Green & Co., 1895.

THOSE unfamiliar with German are to be congratulated on being provided with such an admirable translation of Professor Weichselbaum's *Grundriss der Pathologischen Anatomie.* Few and unimportant changes have been made in the original, though some additions have been incorporated in the present work. Professor Weichselbaum is deservedly recognized as one of the foremost pathologic anatomists of the world, and this product of his labors must be viewed as an authoritative expression of opinion upon the subjects with which it has to deal. An industrious worker, a careful observer, a wide reader, a progressive and original investigator, a thorough student and capable teacher, a fluent and

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easy writer, we have combined the elements essential for successful authorship. This work has been prepared principally for the beginner and the student, and deals in a measure both with the theoretic and the practical aspects of pathologic anatomy.

The translation has been arranged into three parts: the first dealing with general methods of investigation, the second with general pathologic histology, and the third with special pathologic histology. Part I includes a consideration of both histologic and bacteriologic methods of investigation. Part II retrograde changes in tissue; progressive tissue-changes; inflammation; infective granulation-tissue tumors; tumors or new-formations; the parasites, animal and vegetal, macroscopic and microscopic. Part III deals successively with the blood, the circulatory apparatus, the spleen, the lymphatic and thyroid glands, the suprarenal capsules, the digestive apparatus, the liver, the bile-ducts, the pancreas, the respiratory apparatus, the urinary apparatus, the generative apparatus, the nervous system, the organs of locomotion, the skin, the eye, and the ear. An index of fourteen pages facilitates reference. The work is in all respects a most admirable one and deserving of the warmest praise, the translation not less so than the original. The toned paper is heavy and of excellent quality, the type is large and clear and well arranged, and the illustrations, of which there are more than two-hundred, together with eight plates, drawn principally from original preparations, are artistic and accurate. Altogether, the work deserves a cordial reception, and should prove of the utmost service, not only to those for whom it was principally written, but also for the great body of practical physicians interested in the scientific status of their profession.

TRANSACTIONS OF THE VERMONT STATE MEDICAL SOCIETY FOR THE YEAR 1894. Published by the Society.

THE Vermont State Medical Society enters on its eighty-second year of existence with a membership of 175. This volume of its *Transactions* contains thirteen papers read at the annual meeting of 1894. The address by the President, Dr. A. B. Bisbee, is in the form of a paper on the "Conditions Which Favor Tuberculous Infection," and contains statistics gathered from life-insurance material. Dr. J. B. Brewster reports an epidemic of typhoid fever in the town of Windsor, which affected 10 per cent. of the inhabitants (130 cases). The source of contagion was traced to the water-supply, which the "village voted to discontinue," and it now has pure water. Dr. Caverly gives an account of an epidemic of acute anterior poliomyelitis which was confined to the Otter Creek Valley. The majority of children affected were under six years of age; 126 cases are analyzed. F. A. Rich, V. S., M.D., in a paper on "Tuberculosis in the Lower Animals," gives the results of tuberculin-tests in Vermont cattle and in the cattle of other States.

THE INTERNATIONAL MEDICAL ANNUAL AND PRACTITIONERS' INDEX. A Work of Reference for Medical Practitioners. New York: E. B. Treat, 1895.

THIS work, which is in the thirteenth year of publication, is an annual review of the progress of medicine, with special reference to the treatment of disease, condensed in this instance to fill one volume of 648 pages, and edited by thirty-seven British and American medical men, who also contribute a few original articles. Part I is called "A Dictionary of New Remedies," Part II "A Dictionary of New Treatment in Medicine and Surgery," and Part III consists of a review of sanitary science, a review of pharmacy, and contains a small list of new inventions, and a very superficial list of "the principal medical works" published during the year 1894. In order to show "his consideration for all schools" the publisher includes in the list of books a half-dozen or more homeopathic treatises and pamphlets.

Twenty-four full-page plate illustrations accompany the text, although seven of these serve to illustrate an article on eyesight and school-life and are evidently introduced simply to render the work attractive. There is much, however, in the book to recommend it to those who desire a partial index of the medical literature of the year.

TRANSACTIONS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA. 1895. Pp. 441. San Francisco: W. A. Woodman & Co.

THIS volume contains forty papers and committee-reports on special subjects. The articles on Medical Education, the Opium-traffic, and Quackery in Genito-urinary Diseases contain some interesting features. An extravagant paper by C. G. Kuhlman, entitled "The Status Præsens of Inherited Tuberculosis," undertakes to point out the exact nature of the laws required to limit if not to eradicate "tuberculosis, which in the author's opinion is in nowise "contagious, infectious, or dangerous to the public health." The Board of Examiners report 305 applications acted upon, of which 9 were refused. The Society contains 340 active members, and this present volume is the twenty-fifth of its *Transactions*.

THE RETROSPECT OF MEDICINE. By JAMES BRAITHWAITE, M.D., London. Volume cxi. July, 1895. American edition. New York: G. P. Putnam's Sons.

THIS half-yearly compend of medical progress contains a synopsis of a considerable number of articles in the various branches of medical science that have appeared in the medical journals in the last six months. A publication that is in its fifty-fifth year must be of some use to the medical profession. A condensed summary every six months of what the medical world is doing ought to keep the busiest practitioner well informed, and Braithwaite's retrospect serves such a purpose.

## CORRESPONDENCE.

### OTO-MASSAGE.

*To the Editor of* THE MEDICAL NEWS,

SIR: While hesitating to differ with so eminent an otologist as Dr. C. H. Burnett, I cannot refrain from calling attention to some points that he has overlooked in making sweeping assertions in regard to oto-massage in your issue of August 10, 1895. He speaks of direct pressure on the membrana tympani bruising and wounding that structure. This reminds me of inquiries as to

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whether I had ever ruptured the membrana tympani in practising pneumatic massage, or had hemorrhage or syncope follow. Now these results and "bruising and wounding" the drum-membrane can only follow that which might be more properly classed as orthopedic surgery than as pneumatic massage. I have seen a mutilated drum-membrane as the result of rough usage of the Delstanche, but never from properly applied pneumatic massage.

Another thing: Dr. Burnett condemns all forms of "direct pressure" on the membrana tympani, and doubtless no condemnation can be too severe for the brutal stabbing at this delicate structure with probes or solid bodies of any kind. But a properly constructed pneumatic masseur, of which there are several, never produces any pressure on the drum-membrane. Such an instrument will first exhaust and then release the air confined in the external auditory meatus—never compress it. Furthermore, the action is never sufficient to do the slightest injury, never more than enough to give a slight, but perceptible, motion to the membrana tympani if observed through a Siegle speculum. Sittings should never be longer than thirty seconds nor oftener than thrice weekly. Used in this way no harm can result, and I can exhibit a number of cases in which benefit to tinnitus and hearing-distance is unmistakable in extent and permanency.

A man who has no more respect for a beautiful and delicate structure like the human ear than to go stirring around in the auditory canal with a probe and treating a middle-ear sclerosis as an orthopedic surgeon would a fibrous ankylosis of the knee-joint will doubtless never get good results from pneumo-massage.

This matter of pneumatic massage reminds me of those obstetricians who used to blame ergot for lacerating the cervix and perineum, yet they could never be induced to give less ergot than two drams of the fluid extract; often more. If they had tried less heroic therapeutics, the results would have been better and no harm would have been done.

The great trouble has been that oto-massage was widely heralded as a wonderful and infallible remedy for every case of deafness. When this occurs with a remedy but one result can follow: Up like a rocket and down like the stick. Instead of selecting the cases to which the remedy is adapted it is applied to all cases that come along. Any good the remedy may do is altogether lost sight of because too much is expected and required of it, and it is put to a test that no remedy will stand. Certainly Politzerization will not stand the tests to which any new remedy is put. If any otologist gets *permanent* substantial benefit from the Politzer in 40 per cent. of all his sclerotic middle-ear cases, he is more fortunate than I have been. Excision of the membrana tympani, and of two or all of the ossicles, does not yield a higher percentage of benefit. Then why look for pneumatic massage or any other new procedure to perform miracles? The air-douche of Politzer has its sphere of usefulness, but no one looks for it to benefit all cases, nor half of them.

Yours truly,

CHEVALIER JACKSON.

PITTSBURG, PA.

## APOMORPHIN IN THE TREATMENT OF OPIUM-POISONING.

*To the Editor of* THE MEDICAL NEWS,

SIR: As I frequently see in reports of cases of opium-poisoning that apomorphin is still used for its emetic effect in such cases, I feel called upon to utter a word in protest against what I believe to be a very dangerous as well as useless practice. My experience with it is limited to one case.

The patient, a woman, had taken a large quantity of morphin and was so profoundly narcotized when I saw her that respiration had to be stimulated and later sustained altogether artificially. Sending a messenger hurriedly for a stomach-tube, battery, and other necessaries, and an hour later another messenger after the first (neither of whom returned), I finally grew desperate and gave the patient gr. ⅙ of apomorphin hypodermically. The heart's action, which had been fairly good up to this time, quickly thinned away, and in fifteen minutes the patient was dead.

Up to the time of seeing this case I had given the subject very little thought and merely had a vague fear of the depressing action of apomorphin on the heart. Its action here, however, together with some experience in its use as an emetic in cases of alcoholic intoxication, has convinced me of both its inutility as an emetic and its dangerous, nay, its almost necessarily fatal, effect as a heart-depressant in subjects already narcotized by opium or alcohol.

In the first place, emesis is essentially a muscular act and cannot possibly occur without vigorous contractions of the muscular coat of the stomach, together with fixation of the diaphragm and abdominal muscles—conditions impossible to effect in that state of extreme muscular relaxation which accompanies narcosis from opium or alcohol.

In the second place, the effect of apomorphin as a heart-depressant is most profound and unmistakable.

One-sixth of a grain given to a strong, muscular man suffering from acute maniacal alcoholic intoxication ("fighting drunk"), with the attending muscular activity and high arterial tension, will in ten minutes so prostrate him that he will be too weak to raise his head, and the excited heart will have so changed that the pulse can hardly be felt. A drug that will so quickly produce such extreme exhaustion must, it seems to me, be almost necessarily fatal if used in cases of opium-narcosis, in which the heart's action is already depressed to the danger-point.

Respectfully,

GEORGE S. BROWN.

BIRMINGHAM, ALA.

## A DEFINITION OF NIGHT-TIME.

*To the Editor of* THE MEDICAL NEWS,

SIR: Allow me to call your attention to Chapter 85, as enacted by the Legislature of Wisconsin and approved March 23, 1895, as it may be of importance in county bills, poor bills, etc. If it can be made effective in regular practice, it will be a veritable boon for physicians whose work in the winter often accumulates toward evening.

Yours respectfully,

M. IVERSEN.

STOUGHTON, WIS.

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No. 86 S. Published March 27, 1895.

CHAPTER 85.

AN ACT to define the time "night-time" when used in any statute, ordinance, indictment, or information.

*The people of the State of Wisconsin*, represented in Senate and Assembly, do enact as follows:

*Section 1.* The time "night-time" when used in any statute, ordinance, indictment, or information in this State shall be deemed to be the time between one hour after the sunsetting on one day and one hour before sunrising on the next day; and in all cases the time of sunsetting and sunrising shall be ascertained according to mean time in the place where the term may be used, as given in any published almanac.

*Section 2.* This act shall be in full force and effect from and after its passage and publication.

Approved March 23, 1895.

## VITAL STATISTICS.

*To the Editor of* THE MEDICAL NEWS,

SIR: I note an editorial reference in THE MEDICAL NEWS of August 17, 1895, p. 180, to the death-rate of Denver and to the probability of the population being overestimated. I wish to explain that in estimating the increase of population of the city I have added each year a number equivalent to the annual increase during the ten years elapsing from 1880 to 1890; this made our estimated population at the end of the year 1894 about 135,000. At that time there were added to the city by annexation the towns of North Denver, South Denver, and Harman, together with adjacent and intervening suburban districts, containing altogether about 10,000 persons. This seems to me to justify the estimated population of 145,000, upon which our statistics are at present based. An analysis of the figures given in our monthly reports will show that the percentage of deaths from the causes usually held to be preventable is quite low; this, together with the large percentage of adults composing our population, satisfactorily explains the low death-rate of Denver.

Very respectfully,

WILLIAM P. MUNN,

DENVER, COL. Health Commissioner.

# NEWS ITEMS.

***The Number of Medical Students at the German Universities.***—The whole number of medical students in the universities of Germany during the summer semester of 1895 was 8030, of whom 1209 were at Munich, 1080 at Berlin, 707 at Würzburg, 617 at Leipzig, 443 at Freiburg, 406 at Greifswald, 399 at Kiel, 338 at Breslau, 300 at Strassburg, 275 at Heidelberg, 246 at Königsberg, 245 at Marburg, 241 at Halle, 220 at Göttingen, 215 at Tübingen, 195 at Jena, 137 at Giessen, and 101 at Rostock. Thus Munich stands first numerically, and this superiority is due to its greater attractiveness for non-Bavarians, of whom there were 792, whereas at Berlin there were only 298 non-Prussians. During the winter semester of 1893–94 in German universities, 1406 students received, on examination, the degree of M.D., of whom 100 were pronounced "sehr gut" (very good), 928 "gut" (good), and 378 "genügend" (sufficing). Of the first class there were at Leipzig 14, and of the second class 146 out of 201; at Munich, 12 and 111 out of 166; at Würzburg, 11 and 96 out of 135; while at Berlin there were none of the first class, and 111 of the second out of the entire number, 169. These statistics would imply that the examination for a medical degree is more rigorous at Berlin than at the other German universities—assuming, of course, equal competence and diligence on the part of the students.—*Corresp. N. Y. Evening Post.*

***Malarial Hematuria.***—A committee of the Tri-state Medical Society of Arkansas, Mississippi, and Tennessee, consisting of Drs. William Krauss, G. B. Malone, and G. G. Buford, of Memphis, Tenn., and Dr. R. W. Barton, of Marion, Ark., desires to make a complete report on the subject of malarial hematuria at the meeting of the society in Memphis, in November next, and requests information upon the following points: 1. Number of case. 2. Age, color, sex, etc. 3. Previous history. 4. Sanitary surroundings. 5. Kind of drinking-water. 6. Season of year. 7. Is malaria abundant at the time, and in what form? 8. Is malarial hematuria abundant at the time? 9. What type of malaria, if any, preceded the attack? 10. Had patient taken quinin, and how much? 11. Symptoms, character of urine, etc. 12. Therapy. 13. Was blood examined? 14. Termination. 15. Post-mortem appearance. 16. Is it patient's first attack?

***Dr. G. W. H. Kemper***, of Muncie, Ind., celebrated on August 19, 1895, the thirtieth anniversary of his entrance on the practice of medicine. At a reception held by Dr. Kemper numerous toasts were made and appropriately responded to; and the doctor was made the recipient of a gold-headed cane presented by his medical friends. Dr. Kemper was born in Rush County, Ind., in 1839, and was graduated in medicine from the Long Island College Hospital in 1865. He rendered active service in the War of the Rebellion, and he has held numerous public and professional positions of distinction.

***Major Thure Brandt***, a Swedish officer and the originator of pelvic massage as a gynecic therapeutic measure, died recently at the age of seventy years.

***Correction.***—On fourth line from top, second column, page 243, of THE MEDICAL NEWS, August 31st, "1 per cent." should read "2 per cent."

### BOOKS AND PAMPHLETS RECEIVED.

Circumcision. Short Review of the Origin and History of this Custom. By Edwin L. Morgan, M.D. Reprinted from the Virginia Medical Monthly, 1895.

Case of Idiosyncrasy to Ipecac, with Remarks. By Edwin L. Morgan, M.D. Reprinted from the Virginia Medical Monthly.

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# THE MEDICAL NEWS.

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## ORIGINAL ARTICLES.

### A STUDY OF MUSCÆ, WITH SUGGESTIONS AS TO THE PHYSIOLOGY OF INTRAOCULAR NUTRITION, THE ETIOLOGY OF CATARACT, GLAUCOMA, ETC.


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INTRODUCTORY. Subjective visual sensations have not been studied by scientific methods to that extent that their importance warrants. That these phenomena are very common (occurring doubtless to every person), of very great variety, of physiologic significance, and that they are transitory symptoms of many diseases, and unexceptional or continuous symptoms of others—these facts have long been known, but their import has hardly been realized. The recent admirable study of one variety, scotoma scintillans, by Gowers,[1] is, so far as I know, almost the first, certainly the first scientific attempt to classify one genus of these phenomena. Before reading Dr. Gowers' lecture I had carried out the experiments (if they may be so dignified) and made the notes to be described hereafter. Encouraged by the illustrious example, I am moved to set forth a few observations that may be suggestive and helpful to others in their better studies.

CLASSIFICATION. Until more accurate observations have been made, any attempted classification and theory of the phenomena in question will be inexact and incomplete. So soon as possible some sort of grouping and ordering should be made, however tentative it may be. But any such classification at once presupposes a theory or doctrine assumed concerning them, and this assumption is, of course, met by the evident fact that, scientifically, we know too little concerning them to permit of any but a loose and conjectural theory. In a rough way, however, with some doubt and qualification, we may say that all the phenomena in question arise or reside in organs more or less localizable—*i. e.*, they are either:

1. *Peripheral*, originating in the globe of the eye (including the optic nerve), or in adjacent and related organs, as, *e. g.*, muscæ, pressure-phosphenes, etc.
2. *Central*, originating in the cerebral centers where optic-nerve impulses are transformed into visual sensations, as, *e. g.*, scotoma scintillans, phosphenes from occipital traumatism, etc.
3. *Combinations of the two.*
   - *a.* Peripherocentral, primarily or preponderatingly peripheral.
   - *b.* Centroperipheral, primarily or preponderatingly central.

In a strict and physiologic analysis it may be true that every visual sensation requires the synchronous cooperation of both the peripheral and the central mechanisms. In those most manifestly central the mind imperatively locates a corresponding object outside of the body, and even a corneal opacity requires the central mechanism to become subjectively manifest. And yet the classification has a certain validity readily understood.

NOMENCLATURE. This also is in a state of chaos. It would be easy to devise a systematic nomenclature. I have, indeed, busied my fancy with one—and present it with little confidence, because such Minerva-born systems are generally stillborn. The world loves its old foolish names of things, and with most people habit is fate. It would seem a clarifying and labor-saving device to designate somewhat as follows:

SUBJECTIVE VISUAL SENSATIONS.

PHOSES: Light-sensations of whatever kind or color, of a positive nature.

APHOSES: Absences or interruptions of light-sensations, scotomata, shadows, whether formless or of more or less indeterminate form.

PERIPHEROPHOSES: Phoses originating in the peripheral ocular mechanism.

CENTROPHOSES: Phoses originating in the central ocular mechanism.

PERIPHERAPHOSES: Aphoses originating in the peripheral ocular mechanism.

CENTRAPHOSES: Aphoses originating in the central ocular mechanism.

CHROMOPHOSES: Colored phoses—and, if desirable, subvarieties, to wit:

- *a. Erythrophoses*, Red Phoses.
- *b. Chrysophoses*, Orange Phoses.
- *c. Xanthophoses*, Yellow Phoses.
- *d. Chlorophoses*, Green Phoses.
- *e. Cyanophoses*, Blue Phoses.

[1] Lancet, Nos. 3747 and 3748. The Bowman Lecture: On Subjective Visual Sensations.


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*f. Indikophoses*, Indigo Phoses.
*g. Ionophoses*, Violet Phoses.

Without driving the name-making instinct to name-mania, the modifications and qualifications of all subjective visual sensations may be adapted to the terms given, as, *e. g.*, stellate, fiery, darting, stationary, annular, beaded, fortification phoses, etc. The word *spectra* should not be used here, as it has other definite and sufficient uses.[1]

PERIPHERAPHOSES may, of course, be due to opacities of the cornea, aqueous humor, lens, vitreous, or retina. The most constant, commonly observed, and often bothersome of these is the class called muscæ volitantes (better, simply muscæ), or, perhaps, muscal peripheraphoses.

OBJECTIVE CONDITIONS FOR STUDYING MUSCAL PERIPHERAPHOSES. In the summer of 1895 I lived upon a mountain 4000 feet above sea-level. In looking at the panorama of mountains and sky stretched before me I found that my never-absent *mouches volantes* were often outlined with surprising clearness, and were far more numerous than I had supposed. I found that the background of a sun-illumined bank of clouds brought them out with unsuspected sharpness. I have spent many hours in studying them. The dull white, horizonless, cloudy, misty, or smoky sky, with no definite object to fix the attention, below, around, or above, is, therefore, the best objective condition for the study proposed.

SUBJECTIVE CONDITIONS. The principal of these is good health (as that is essential to the highest retinal sensitiveness), patience, dexterity of ocular movements, good visual acuteness (my own is 20/10), and experience in catching infinitesimally slight visual sensations, and especially those intermediated by peripheral portions of the retina. The less direct sunshine there is the wider the pupils, and hence the larger the "field of operation," although the clouds should be bright with diffused sunlight. A large measure of success is doubtless dependent upon long education of the extramacular portions of the retina, and the ability to study objects focused there. But I shall describe a most valuable means of largely obviating the necessity of this peripheral-field study, and one also that has, I think, considerable significance in other directions. This method is one that for want of a better name I have called—

OCULAR BALLOTTEMENT. It is almost needless to explain the principle of physics underlying the experiment of ballottement as practised by obstetri-

[1] A PERSONAL OBSERVATION AS TO "FORTIFICATION"-CHROMOPHOSES. Dr. Gowers has wisely suggested the collation of personal experiences, and although my object in this writing is to express some thoughts as to one variety of "peripheraphoses," commonly called *muscæ volitantes*, which should be conveniently contracted to *muscæ*, I shall take occasion to say parenthetically that I have been subject all my life to attacks of fortification-chromophoses, or scotoma scintillans. These seem to have no definite periodicity. Sometimes I may go a year with none, and sometimes I may have several attacks in as many weeks. I do not remember to have had two attacks on the same day. I can trace them to no cause either in the general health, or in special conditions, of study, etc. I think being in bright sunlight has sometimes been an immediate or cooperating factor in bringing on an attack. More often I have noticed that after walking rapidly in sunlight the sudden entrance into a dark hall or room would produce what might be called a pseudo-attack—an aura, or intimations of the same, dim scintillations, indistinct chromophoses, but lasting only for a few seconds or a minute.

The genuine attack begins with the dimmest fluttering, as if of some indeterminate thing at the periphery of the field of vision, usually on the right side, a little north of east, let me say, or sometimes due northeast. This fluttering gradually approaches the center of the field, but never reaches it, and as it approaches it becomes both more distinct in form and more definite in chromatization. It takes from five to ten minutes before the acme of the attack is reached, and as long for the subsidence, which last, as to color, location, etc., is the exact reverse of that of the ascending process. At the period of greatest intensity the chromatization is not definite; *i. e.*, I cannot clearly distinguish definite colors; this may be due to the rapidity of the fluttering or scintillating movements, which I estimate as about six or eight a second. This vibratory or fluttering movement is about uniformly rapid from the beginning to the end of the attack, and is about the same in all attacks.

The predominating colors, perhaps, are, in order of prominence, yellowish-white, reddish-yellow, and a dark neutral-tinted or aphosic line that forms the most clearly distinguished central part of the "fortification"-figure. But the angles of my fortifications are never sharply acute; they are usually about right-angled, or slightly obtuse. Sometimes in their approximation to the center of the field of vision the widening fluttering lines will show a distinct curvature about it, but neither the straight nor the curved series of angular chromophoses usually pass beyond the hemianopic vertical line into the left hemisphere. There are no sequelæ whatever, no migraine, no headache, or other uncomfortable symptom.

During the paroxysm, although the chromophoses do not seem to attack the macular vision directly, I somehow find it impossible to continue reading. I have a difficulty in determining or describing the reason for this. By an effort of will I can see the printed words, at least temporarily, but they become blurred or in some way indistinct, and it becomes extremely difficult, though not painful, hardly even uncomfortable, to continue. The waving and quivering of that tormenting flag, so very close to the eye, is unendurable, and I lie down or walk about until it all passes away. Position of the body, or brisk exercise—nothing seems to influence in the least the ordered march of events. The process seems to appear when it will, without discoverable cause, and carries out its kaleidoscopic program without regard to any physiologic influence.

I may also allude to a variety of phoses that I have observed a thousand times, but that I have not seen described. In looking at a uniformly well-lighted blue sky I can, by careful and continuous indeterminate observation or interspace-fixation, bring to view numberless pin-point phoses, not very sharply and definitely outlined, but still clearly seen, appearing and disappearing with almost lightning-like rapidity, and quivering or darting throughout the central visual field. I attribute these to the commotion set up by the diffused strong light-stimulus in the pigmentary receiving-substance of the retina, these individual dot-phoses or peripherophoses being the idiopathic response of particular retinal nerve-ends or elements to the general stimulus. These definite phoses are preceded by a period of indeterminate quivering of the air, as it were, or of something so near nothing that it is beyond recognition or description.

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cians. If a body of slightly greater specific gravity than the liquid in which it is submerged is, by a fillip, thrown to the surface or upward, it will slowly settle back again to the bottom. In cases of chronic choroiditis shreds of exudate floating in a liquid vitreous can, by a little fillip of the eye by the patient (first upward and then suddenly halting at horizontal fixation), be seen with the ophthalmic mirror descending to the lower part of the eye like snowflakes in the night as seen from a window. The rate of downward movement will, of course, depend upon the relative densities of the liquid and the opacities.

From time immemorial muscæ have been described as shadows of retinal vessels and vitreous cells directly *in front of the retina* (*not* directly in front of the *vitreous*), located at one side of the fixation-point, so that they continually elude direct fixation by a will-o'-the-wisp movement ever further and further as one seeks to transfix them with the optic axis. A few experiments with ocular ballottement will show one that these are not fixed particles, but that they are bodies floating in a liquid medium, and thrown by motions of the eyeball upward or about, to settle, if permitted, at the most dependent portion of the eye. This can be demonstrated, while sitting in the usual position, by a rapid whirl of the eyeballs, suddenly again resting at horizontal fixation. The swirl of the muscal bodies will now be seen to follow the previous circular motion of the liquid, curving as they fall. One may then lie down on the right side with the axis of the body and head horizontal: the particles now fall, after ocular ballottement, toward the right temple or the ground. By lying on the left side the same facts, *mutatis mutandis*, are shown. By a very sudden and energetic jerk of the eyes downward, arresting the movement very sharply and suddenly, one may get a positive rebound from the bottom of the chamber up to the line of visual perception. But the most convincing and instructive experiment is to lie flat on one's back, without pillow and with the chin slightly elevated; by dexterity both in movements of the head and of the eyes, one is then able to bring any one of these muscæ into the center of the field, and poise it there, as a juggler adjusts a whirling plate above his head. Thus to bring any one of many muscæ haunting the periphery into the line of macular vision, and to hold it steadily there while gazing at it, will require considerable experimentation with the ocular fillip, and with delicate poising or adjustment of the head. By alternately closing one eye and then the other one may observe in which eye a group of muscæ is located.[1]

[1] I have been able to observe muscæ through the closed lids, the eyes being directed toward brilliant light. I have also studied them face downward, overlooking a neutral-tinted illumined porch-floor, but the experiments brought out no significant facts.

ACTION OF ACCOMMODATION UPON MUSCÆ. If while holding an aphose thus in unstable but continuous fixation, a sheet of gray paper is interposed within about twelve inches of the eyes, at once what was a very indeterminate, formless, or dimly seen shadow is minimized in size, but correspondingly definitized in outline and characteristics according to well-understood optic laws. At the same time the fact will be noted that when deftly done the act of accommodation does not *per se* squeeze, or deport the object aside. I infer from this that wherever the liquid chamber is located the bulging of the crystalline lens does not greatly displace the particles of the liquid and of the contained muscægenetic particles. As I shall try to show, this liquid chamber (let us for the time name it the aqueovitreous chamber) is, I believe, located immediately behind the lens, and I at first thought that the fact that the particles do not move by the act of accommodation argued against the theory of this location of the chamber, because it would seem that the backward bulging of the lens would somewhat squeeze aside the particles in the base of the cup. I conclude, however, that the chamber is located as described, and that the non-movement of the particles in accommodation is due to the fact that the chamber is *full* of liquid and under pressure as much, of course, as all intraocular humors, and that the slight backward thrust or compression would not, therefore, displace the particles in the central portion, or that pierced by the visual axis. Besides this, the bulging of the circumjacent ciliary muscle would equal and neutralize any tendency of the lens-movement to displace them.

THE LOCATION OF THE AQUEOVITREOUS CHAMBER. The motion of the muscægenetic particles after the fillip of ocular ballottement determines the location of the aqueovitreous chamber. Objectively in choroiditis we can see the opacities descend after the upward glance of the patient's eye, or rebound from the bottom of the chamber when a sharp downward sweep is suddenly arrested. Subjectively we may observe the same phenomenon in the case of physiologic peripheraphoses or muscæ. But in the latter instance we can use the slightest fillip, a mere hint of short upward-glancing, and observe the resultant upward jerk of the particles, to be followed, of course, by their slow fall if the gaze is then kept steady and unmoved. Sometimes the particle is situated laterally in the field, and the motion of the eye to see it continuously displaces it further laterally, but the usually downward tendency can be shown by steadily holding the eye quiet. It certainly falls by gravity, out of reach of sight, in the dark parts of the chamber. I have rarely noticed any appearance disproving that the particles are not freely mobile, except that the larger or more swollen strands, and especially

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the tangled masses of the same, are often more difficult to manage, seem to adhere to the walls of the chamber, etc. These facts necessarily locate the chamber in front of the vertical equator of the eye. If the chamber were posterior to the equator, an upward glance would throw the particles downward. (This fact may serve as an aid in localizing the position of pathologic vitreous opacities.) From readily recognized reasons, needless to recapitulate, the location of the aqueovitreous chamber containing the muscægenetic particles in suspension must be between the vitreous body posteriorly and the lens, its ligament, and the ciliary body, anteriorly. It may be said if such a "chamber" existed in this situation anatomists would long ago have demonstrated its existence, but in reply it need only be said that the mere fact of opening the globe destroys the space, and the extremely thin film of liquid in the unwalled space disappears unnoticed. Attention to it will, I am sure, result in methods of demonstrating its existence with the naked eye or the microscope.

CHARACTER OF THE MUSCÆGENETIC PARTICLES. In my own case the most conspicuous of these particles are what I have called cellular; *i. e.*, aphosic globes or ring-like appearances, sometimes nucleated (with a darker center), the nucleus surrounded by a space of lighter gray between it and the darker wall. With suspended accommodation these cells, as shown against a cloud, seem to subtend an angle of perhaps one or two minutes, and all outlines are softened or blurred. With the accommodation active, these cells, with their (four-fifths or nine-tenths?) reduction in size, gain definiteness of contour and structure, and what seemed before as discrete cells are usually found to be arranged in chains or necklaces, the cells often marking an angle or curving-point from which extends an indistinct and homogeneous band or cord running off to other cells.[1] Almost constantly there are in the field also continuous strings of cells, the intercellular cord seemingly non-existent, and lying in contact with one another. I have counted as many as twenty-five or thirty, or more, "beads" or cells in a single string. Sometimes the strings stretch out almost in a straight line; at other times they are coiled and tangled in a confused mass. They change in appearance every second, as they are moved by the currents of the liquid and motions of the eyeballs. Under the microscope or in illustrations of histologic teased tumor or other tissue, I have seen structures almost exactly like those of certain muscæ vary in their relative density, some falling more rapidly than others. A few seem almost of the same specific gravity as the liquid, and fewer still are lighter. In the same string the beads are almost uniform in size, but are of different sizes in different strands, some being twice the size of others. The larger are usually of indefinite outline and more filmy in appearance, seemingly more swollen and nearer disintegration.

The second class includes mere indeterminate and formless, cloudy or filmy shadows, or shreds of all sizes.

The third class requires for observation extraordinary acuity of vision, long experience and education in ocular ballottement, as well as peculiar and almost indescribable conditions of light. Through a window-slit I have sometimes observed them with remarkable distinctness, upon awakening in the morning, with the retina, of course, in a rested and acutely sensitive condition. They seem like dust or fine rain, settling downward much more slowly after the upward ocular fillip.

As nearly, therefore, as I can observe and classify them, my muscæ are:

1. Cells, or cell-strands, sometimes with intercellular cords, sometimes in juxtaposition, like a close necklace of beads.

2. Formless filmy or cloudy masses.

3. Fine particles, in appearance like soft, fine rain.

I have thus described these aphoses as they appear in a sitting posture, but by lying flat upon one's back and poising them before the macula the second class is soon proved to consist usually of the chains or necklaces that seemed formless only because they were seen by the peripheral portions of the retina, or because matted and massed in a tangle. Such a seemingly formless mass, poised before the macula may even be unraveled or disentangled by numerous ocular ballottements, until all the interlaced and matted strings are washed apart from each other.

Experience and careful observation have convinced me that the quantity of muscægenetic material is vastly greater than has been suspected. Under exceptional circumstances of light, etc., I have certainly observed as many as twenty or thirty separate strands or masses in the field at one time. In my own case I am in perfect health, and the seemingly excessive amount of this material cannot, therefore, be called pathologic. I believe that, in varying degrees, the material is present in every person, requiring only a number of necessary conditions and sufficient attention to make it manifest. While reading, of course, the lateral motions of the eyes do not make this vastly larger part of particles surge upward into the field of view, either to obscure vision or to become noticeable, and when walking they are not observable by anyone. If the motion of the eyes in reading were up and down, they would certainly be more troublesome. While still physiologic the amount of matter is never so great as dis-

[1] It was this, I think, that v. Zehender saw in his experiment, and not a reflex of the optic nerve.

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tinctly to cloud vision, except in microscopic work or in such climatic surroundings as are fitted to bring it before the attention. Then it must not be forgotten that only as it rises into or descends through the small space lighted by the pupil is it possible for the retina to note its existence. There is doubtless, all about, a cavity or peripheral portion of the aqueovitreous chamber large in extent as compared with the area illuminated through the pupil, because by ballottement the muscæ fall out of sight and rise again out of an unseen space. Moreover, the peripheral muscæ at one time in the field never occupy what I should judge to be over 40° or 50° of the extramacular field. Even within this space, however, the trained and sensitive retina directed to the zenith perceives a vastly larger amount of muscæ-genetic material than would have been believed possible. It may also be noted that out of doors, or in well-lit rooms, the pupil is contracted, whilst in mydriasis the conditions of observation and study are destroyed.

There is a toy that crudely but strikingly illustrates the manifest fact. It is a hollow glass globe, filled with fluid, at the base of which are illustrated a house, people, etc. The fluid contains a sort of sand, of slightly heavier specific gravity than the liquid. By shaking the white sand a mimic "snow-storm" is produced as the grains settle to the bottom. If this globe were surrounded with black paper, except at one point, leaving an imitation pupil, and at the opposite end a hole to look into, and if into the liquid were thrown diaphanous or translucent shreds of teased and broken-down tissue in all states of degeneration, by manipulations, or "ballottements," one would have all the essential phenomena of the eye described, providing the size and refraction of the globe were such as to create the verisimilitude. The "chamber" of the eye, instead of being round and roomy as in the toy, is but a thin vertical space, between the vitreous and the structures in front of it, possibly thinner in the center, and deepening at the periphery adjacent to the ligament of the lens. Never have I seen a strand of cells as if "end-on," and rarely more than one or two behind another. In the region pierced by the visual axis, the chamber is therefore not much deeper than two or three times the thickness of the lining membrane of a vitreous cell.

THE FUNCTION OF THE AQUEOVITREOUS CHAMBER AND ITS CONTENTS. What an organ does, that is its function—and its functions, as those of most structures, are often multiple and made to serve multiple purposes. It is the fault of physicians that, having discovered one use of an organ, or one factor in the etiology of disease, they rest content and do not learn that, generally, disease has more than one, often several causes. In physiology, *e. g.*, the object of winking has always been given as the cleansing and the keeping of the cornea uniformly moist. Doubtless a result as absolutely important is that of giving the retina temporary rests of darkness, whereby the extremely complex and unstable sensitiveness (visual purple or what not) is re-established. One may doubt if there is a more difficult and enormously delicate labor carried on by the animal economy than that of first making and then keeping the retina in that receptively delicate condition necessary for response to the inconceivably and infinitesimally slight stimulus of light. Muscæ may be considered as one such aid in securing an instant's rest, in temporarily shading, and continuously replacing light by shade, upon which the retinal equilibrium depends. Thousands of times every day these shadowy particles, ever variant in size and qualities, glide unnoticed in front of the macular region, and together with winking give it an instant's reduction or relaxation from the strain of visual response. But other and more important functions are suggested.

1. The existence of such a chamber serves to unravel the mystery of, at least, one aspect of vitreous nutrition, disconnected, as the vitreous body so largely is, from the usual means of excreting waste products. The hyaloid canal aids lymphatic excretion through the optic nerve, but both it and the hyaloid membrane are open in front and permit drainage into the aqueovitreous chamber there located. Into this space are extruded the products of tissue-metamorphosis, the collapsed worn-out cells, shreds of tissue—in a word, the débris of vitreous katabolic change.

2. The liquid may have a useful purpose as a lubricant and buffer in the ceaseless changes and frictions of the mechanism of accommodation, in equalizing and distributing pressure, etc. If the vitreous were pressed close against the filtering membrane, the passage of any liquid through the septum into the aqueous chamber would be greatly impeded.

3. Possibly more important still, the chamber may have a most useful and necessary function as a "settling-basin," wherein the undissolved products of vitreous excretion are shoved, and thus gotten out of the way of direct vision so far as relates to *fixed* and *continuous* opacifications. What a nuisance it would be to have a single musca-cell permanently before the macula!

4. As is well known, the liquid of the first exhaustion of the aqueous chamber is non-albuminous and non-coagulable. Upon the reformation of the aqueous a second tapping is found to yield an albuminous and coagulable fluid. The significance of this fact in wounds of the cornea is evident. May the aqueovitreous chamber not aid in this function and serve as a storehouse or reserve stock for re-

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filling the aqueous chamber, and in case of traumatism, with a readily coagulable fluid?

5. Doubtless by far the most important use, however, is that of attrition, dissolution, breaking-down, and liquefaction of the débris of vitreous excretion, so that this may pass into the absorbent channels and thus finally be disposed of. The process to which these particles are subjected by the ceaseless motions of the eyes is a genuine churning-process, the narrowness of the space in which they are confined rendering it all the more effective in the uninterrupted friction of the particles against each other and against the boundaries of the chamber. It may also be possible that the liquid may have some true digestive power to hasten the process of liquefaction. Active out-of-door life begets healthier eyes than indoor life, and to some extent this may be due to the more effective nutrition resulting from better local conditions of attrition, etc., in the "churning-process," resulting from bodily and ocular motility.

6. The translucent muscægenetic particles floating in the chamber may afford the incidental shading of all parts of the macular region to which allusion has been made, and thus serve to give slight relief from the constant glare of light that, as all know, is so harmful to retinal sensitiveness. In this respect they serve to supplement the act of winking, as every wink slightly stirs the sediment of the liquid, just as to a greater extent does every contraction of the extra-ocular muscles, incessantly active during waking.

The query arises and may be worth noting parenthetically, whether the products of this dissolution-process or digestion may not in some way be utilized by the lens as nutritive material. So large an amount of organic matter, half or wholly digested and lying in constant contact with the capsules and ligaments of that organ, the only supply of nutriment of which is drawn from this cavity, must certainly exercise an important influence upon its nutritional condition and repair. But this aspect leads me to remark upon a possibly pathologic significance growing out of the ensemble of facts and inferences that have been set forth.

The two most common, most mysterious, most serious, and, to treatment, most intractable, of all diseases of the eye are cataract and glaucoma. The etiology of each is as obscure as the treatment is unsatisfactory. That the best minds of a special class of brilliantly intellectual medical men have failed so far to bring solutions to these questions makes me shrink from any but the most modest suggestion of a not improbable explanation.

A POSSIBLE FACTOR IN THE ETIOLOGY OF CATARACT. Whether or not the lens and its capsules, for purposes of nutrition, make any physiologic use of the dissolved and digested organic matter bathing the posterior capsule and ligament, it does not seem otherwise than reasonable that with pathologic conditions of this liquid there may ensue pathologic conditions of the lens and disturbances of its nutrition. Careful consideration of the influences and circumstances at work, of the transcendent delicacy of the processes, and of the instability of the equilibrium or balance between secretion and excretion of the "closed system" of the eye—all these and other things that might be enumerated make it plain that pathologic states of the liquid of the aqueovitreous chamber may readily arise. When one reflects upon the unsuspectedly large amount of normal undissolved muscægenetic material or débris of this chamber, it is readily seen that a slight increase in the amount above the normal would readily change physiology into pathology. Under such circumstances digestion would quickly become dyspepsia—and especially so in the already deteriorated nutritional processes of the aged, of the weak, etc. Then, also, it should be remembered that the slightest decrease of the amount of the diluent, the secretion filling the chamber, would have the same effect. Let one also realize well the necessarily small capacity of the chamber, the general microscopic plan of the space, the parts and processes, and it will become plain that the narrow line separating physiology and pathology is most easily passed. Senile cataract does not arise until the late period of life when nutritional disturbances are at work in the entire organism and the lessened vital forces are more and more incapable of repairing the ravages of tissue-waste and injury. I have myself no doubt that long-continued uncorrected eye-strain is a potent factor in the production of senile cataract, but that it acts alone, without other contributing agencies, is hardly supposable. With the growing inelasticity of the lens—presbyopia—(may this inelasticity itself not depend upon local (muscal?) as well as systemic denutrition?) the presbyopic ciliary muscle does not cease to work—indeed, its labors are perhaps all the more straining and irritating. Uncorrected astigmatism in presbyopes thus serves to induce pathologic conditions of the ligament and capsule of the lens (the filtering membrane), with irritation and denutrition. I would only hazard the suggestion that a morbid condition of the fluid bathing the parts, an excess of undigested muscæ, a slight upsetting of the balance between secretion and excretion, may cooperate with ametropia and systemic denutrition to produce the local lenticular denutrition or morbidity called cataract.[1]

[1] Certain forms of anterior choroiditis, cyclitis, "posterior capsulitis," etc., may possibly be caused or complicated by such conditions. Bacteria introduced through traumatism or other means would find here a culture-medium well adapted for their multiplication.

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THE ETIOLOGY OF GLAUCOMA. The obliteration of the filtration-angle is beyond question the immediate or secondary cause of glaucoma, but what is the *causa causæ*—the cause of the cause? Why the increased pressure from behind? To this question no answer has been given. Closure of the filtration-angle or of the canal of Schlemm, and excessive secretion in the vitreous chamber—deficient excretion in front, and over-production behind—have seemed the sole alternatives. To these I would add a third, the choking or clogging of the sieve, the membranous septum of the lens-ligament, by the débris-sediment, or solution of the aqueo-vitreous chamber. Excreted organic matter, softened, partially liquefied, or partially digested, granular, or viscid, of all possible substances, would be most perfectly adapted to choke up the pores and the intercellular spaces of a membranous diaphragm. This is so outside of the body in the osmotic processes of dead membranes, and it cannot fail to occur in the living membrane.

It may be urged that such a choking of the septum would at best only be likely at the bottom of the chamber, where the sedimental particles naturally settle. The objection ignores three facts:

1. It is not at all to be taken for granted that only it is the visible, the heavier, or the larger particles that may choke the membrane the most. It may possibly be the lighter and finer, the more dissolved varieties that are not seen at all, or that are rarely seen; or, still more probable, the liquid itself, made over-viscid by too much dissolved material.

2. We do not know but that the top of the chamber may be equally or even more charged with non-liquefied, unabsorbed material of lighter specific gravity than the liquid. This would seem very plausible. Such particles would not often produce muscæ, because, to reason from analogy with objective solutions, such floating matter would, by the motions of the eye, not be submerged, and thus be brought into the area to render them visible. That some muscægenetic particles are lighter than the liquid, and do inhabit the upper part of the chamber, I have (rarely) proved.

3. Most significant still is the answer that we forget that one-third of our lives is spent in sleep and in lying down. Those who sleep on their sides would expose one of the lateral (when prone, the lowermost) portions of the chamber to impacts of the sedimentation-process, and at a time when immobility of the eyes would permit the injury (if it exist) from sedimentation and choking to be most active. Very few persons lie habitually and continuously all night with the head in one position, so that different parts of the filtering septum are successively exposed for hours to the risk of being covered with an excess of sediment. It is said that in sleep the eyes are turned upward; *i. e.*, as if by contraction of the superior rectus. If so, is it a device of the organism to permit the sediment to drop away from the septum, and at the posterior or flat aspect of the chamber? Sleeping upon the face, or as nearly so as possible, would be the worst position. Certainly upon the back, and without a pillow, would be the single position that would free the septum most from the risk of being covered by sediment. But I have never known but one person who habitually slept in this position. It would be interesting, though by no means conclusive, to learn the position in sleep of glaucomatous patients.

THERAPEUTICS. Not only does this theory of the primary origin of the glaucomatous process seem apriori to meet many or all of the requirements of an explanation, but it also appears to correspond with the clinical demands. All varieties of cases, the acute, fulminant, subacute, or chronic, would be explainable by it as the natural responses of varying degrees, clearings, and modifications of the sedimental chokings of the filtration-septum.

Both cataract and glaucoma occur in those over forty or fifty years of age, when diminution of secretion and lessening of the general nutritive processes are noteworthy characteristics. Diminished secretion of the dissolving or digestive fluid of the aqueovitreous chamber, even to an infinitesmal degree, in the almost infinitesmal proportions of these areas and functions, would at once produce markedly increased viscidity of the contained liquid—a condition also more liable to occur in connection with the corporeal inactivities of old age, as well as the lessened excretory and vital powers of the tissues generally. When this morbidity is, as it were, chronic, only cataract may arise. When it rises to a certain pitch, clogging, or (as workmen say of sieves and drains) "fouling" of the filtering membrane occurs, and we have the glaucomatous process. This heightened process of glaucoma, too, is prone to occur in the nervous, and worried, and anemic, especially in women, in those generally in whom the expenses of the life-process are in excess of the income—*i. e.*, when there is excess of waste product over excretory and secretory repair—specifically, when the aqueovitreous humor tends to become overloaded with semi-dissolved, non-excreted, viscid matter. (Did a fat person ever have glaucoma?) It may be noted, also, that in glaucoma the lens often become cataractous, whether secondarily from pressure or primarily from morbidity of the aqueovitreous humor and denutrition remains to be proved. The increased albuminousness and coagulability of the aqueous humor in glaucoma also tally with what the theory would demand. It is exactly as in the physical process of osmosis under pressure outside of the body. The strange clinical fact that the glaucomatous process is often tem-



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porarily checked by sleep should not be forgotten. This has a double significance in the light of the theory here proposed.

When we reach the clinical observations that mydriatics intensify the glaucomatous process, and myotics lessen it, we find that hitherto these facts were purely empiric, and the rationale of the action was hidden. But the myotics, eserin and pilocarpin, increase glandular, osmotic, and secretory activity, while mydriatics correspondingly or to a greater degree lessen them. Now, although an increase in the *amount* of the liquid in the aqueovitreous chamber would seem, apriori, to increase the intraocular pressure; it also would lessen the viscidity of the fluid there, and thus lessen the clogging of the filtration-membrane in front. The reason also becomes clear why this action is the more pronounced the earlier in the glaucomatous process it is instituted, and why it is comparatively resultless in late stages, when the anterior filtration-angle and the canal of Schlemm are occluded by pressure and inflammation, and the results of the glandular functions posteriorly are annulled by the same influences.

Nobody has suggested any satisfactory reason for the empiric fact that iridectomy is of use in a certain class of cases of glaucoma. Sometimes we know it does harm; often it does no good, even in the acute stages, and in the "absolute" or chronic cases, and in glaucoma simplex, it only succeeds in giving any relief in about one-half of the cases. When the tension of the eye is normal it is wholly without effect in reducing tension to subnormality. If the theory I have suggested be proved valid, the explanation of all these facts observed clinically becomes clear, or will become so by investigation. Sclerotomy has undoubtedly effected cure in some cases. But any operative measure, to be effective, must increase the filtration-capacity from the aqueovitreous into the aqueous chamber. A simple hole through the suspensory ligament would undoubtedly be absolutely effective—if we could secure this without producing traumatic cataract or luxation of the lens, and when we can safely extract a non-cataractous lens (in conjunction with posterior discission), we may be able to save some remnant of vision in neglected and otherwise hopelessly ruined glaucomatous eyes. In the light of the theory here set forth, iridectomy can only aid in relieving glaucomatous tension by increasing the porosity of the filtering membrane. Just the precise method in which it effects this I leave for future investigation.

Massage, properly and intelligently applied, would seem to be the most clearly indicated therapeutic measure to break up mechanically the clogging process, stimulate additional secretion of diluting and digestive fluid, and arouse normal function generally.

I have had but one case of glaucoma since groping my way to this theoretic conception of the disease, and that was a typical case, in which vision had been reduced to $\frac{20}{100}$. I began by teaching the patient to some extent the principles, and accurately the manipulations, of massage of the globes of the eyes. There had been no considerable response of the pupil or of the glaucomatous process to eserin. Before proceeding to iridectomy I determined to try massage, and from the day it was instituted improvement began, and the vision steadily rose to $\frac{20}{50}$, with entire cessation of all the symptoms, except that the paralyzed iris still remains somewhat mydriatic and wholly immobile. If the supposed sedimental stasis and choking had not been broken up, stirred up, and helped by means of massage, it would appear that an incision of the sclera beneath the dependent portion of the aqueovitreous chamber, with drainage, and even artificial irrigation of the chamber with a solution of sodium chlorid, would be the natural indication in obstinate and extreme cases.

The foregoing, and especially so far as it relates to cataract and glaucoma, is a study by the method of Zadig, upon a manifestly very small basis of facts. I offer it as a working-hypothesis. I am as well aware as any critic can be of the dangers of extensive inferences from slight data, but all science, in its reachings into the unknown, rests more or less upon Zadig's method, and the only criticism that finally obtains is as to the accuracy of observation of such facts as form the basis of the inquiry, and the inevitableness or firmness of the logical links of the inferential chain. The proof of the whole theory, so far as relates to the last two paragraphs, must finally rest upon the facts of the existence and running away of the Queen's horse itself, its color, its length of tail, its silver shoes, etc.—that is, in our instance, upon the microscopic study of the parts and processes, and upon the result of the therapeutic tests. These things I must leave to others to carry out. If I have erred, and if the suggestions I have offered are either in part or entirely unjustified, my excuse for the haste of publication, prior to experimental provings, is that I would prefer the just censure of the most unsympathetic critic and disprover, rather than to risk the relief of a single patient by withholding what may turn out to be a new ray of light upon the etiology and cure of a group of formidable diseases.

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***Typhoid-bacilli in the Urine of Typhoid-fever Patients.***—WRIGHT and SEMPLE (*Lancet*, No. 3752, p. 196) have reported seven cases of typhoid fever, in six of which typhoid-bacilli were detected in the urine. They consider this evidence as supportive of the view that typhoid fever is a "blood-infection" rather than an "intoxication-process." The practical outcome of these observations is that care should be taken in the disinfection of the urine as well of the intestinal evacuations.

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## SOME MOOT POINTS IN THE TREATMENT OF APPENDICITIS.[1]

BY MILES F. PORTER, A.M., M.D.,
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I DESIRE to premise this paper by saying that it is based very largely on the literature of the subject. My own experience has not been sufficient to allow me to give any great weight to deductions drawn from it alone.

Briefly stated, I have had under my care within the past seven years fifteen cases of appendicitis. Eight were pus-cases, seven of which were treated by incision and drainage and one by removal of the appendix. One case was drained through the healthy peritoneal cavity. In the other six cases the peritoneal cavity was not opened.

Seven cases were treated without operation. All recovered. There has been no relapse and no permanent fistula. Two of the cases are too recent to determine as to the permanency of the cures.

While I believe appendicitis to be from start to finish a surgical disease—*i. e.*, one demanding the services of a surgeon—I cannot subscribe to the doctrine that all cases require operation. My experience, together with a careful study of the subject, compels me to believe that by the exercise of good surgical judgment a large number of cases will be found in which non-operative treatment will yield the best results. In a previous paper[2] seventy-seven cases were tabulated in which operation was not deemed advisable; all recovered without recurrence so far as known, though all of them could not be followed. To these I can now add two more occurring in my own practice. Richardson, of Boston, also reports[3] fifty cases treated medically, without a death.

When there is pus, perforation, or severe peritonitis, operation is demanded; as it is also in those cases in which there is imminent danger of those conditions arising. Of course, I am aware that many hold that no man can tell when a mild case will develop into a severe one, which an operation cannot save. I believe this to be possible, but contend that it is a rare exception. In this connection we must not reckon without those fulminant cases in which fatal conditions obtain in a few hours, and in which death results, no matter how prompt the operative interference. In these cases fatal sepsis, peritonitis, or other fatal conditions are present when the symptoms first manifest themselves. In my paper already referred to are tabulated fourteen primary cases in which there was suppuration or perforation almost from the beginning.

Chronic cases, and cases in which recurrences are frequent, should, in my judgment, be subjected to operation, for the risk of operation in those cases is no greater than one would be willing to take for the chance he would have of permanent and complete recovery.

Before this question can be definitely settled, it seems to me necessary to collect a large number of cases from the practice of those who operate in all cases as soon as the diagnosis can be made and wherein they have had the opportunity of making early diagnoses, and an equally large number of cases treated under similar conditions by those who take the position that some cases require operation and others do not. As yet the statistics for such comparison are not adequate.

In case of operation there can be no question that the appendix should be removed in cases without pus, cases of endo-appendiceal abscess, and in the majority of peri-appendiceal abscesses in which it is necessary to carry the drainage through the general peritoneal cavity; also in cases of gangrene or perforation without limiting adhesions.

Exception should be made in favor of rapid opening, cleansing, and drainage, preferably with gauze, in cases of this latter class operated upon *in extremis*. In this class of cases prolonged operation means death, and the surgeon should sacrifice the ideal for the sake of the life in his hands, albeit he may but rarely succeed in saving it.

Concerning those cases in which there is a circumscribed collection of pus that can be opened without entering the general cavity of the peritoneum there is much difference of opinion. Maurice Richardson says:[1] "If, for no other reason, the low mortality in cases of circumscribed abscess, and the perfectly satisfactory and permanent results that have followed simple incision and drainage, are sufficient grounds for limiting our operations to the cavity itself." He has had but two recurrences after drainage, and in one of these the drainage was through the rectum. That appendisectomy is attended with infinitely greater primary danger than simple drainage in these cases cannot, of course, be denied. One need only to read the reported cases to be convinced that, already, lives that might have been saved by simple incision and drainage have been sacrificed through adherence to the dogma that the appendix should always be removed. To offset this greater danger there should be unquestionable proof that the removal of the appendix offers security against recurrence or other dangers that, though perhaps not so immediate, are still none the less real. The cases thus far reported fail to furnish this proof.

Cases of recurrence of abscess are not unknown

[1] Read at the meeting of the Madison County Medical Society, Alexandria, Ind., July 2, 1895.

[2] American Journal of the Medical Sciences, December, 1893.

[3] American Journal of the Medical Sciences, January, 1895.

[1] Loc. cit.

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by any means after the so-called "ideal" operation. In a case reported by Richardson,[1] operated upon by Dr. Beach, who removed the appendix, the patient subsequently developed an abscess, which was opened and drained, and a week later was seized with sudden and violent abdominal pains, and died.

Dr. Fowler,[2] of New York, also reports a case in which an abscess developed three months after an appendisectomy.

Dr. Richardson[3] reports recurrence of all symptoms of appendicitis a year after a removal effected by him, but in which the symptoms subsided without further operative interference. A. C. Bernays, in a letter to me, reports a case in which after removal of the appendix there were two relapses, death following the operation in the second relapse. Other cases of similar kind might be cited, but the foregoing are sufficient to show that appendisectomy does not render patients upon whom it is performed absolutely immune from further trouble in the right iliac region.

Theoretically there would be, it seems at first sight, great advantage in removing the appendix, inasmuch as the ligature shuts off communication between the abscess-cavity and the bowel; while in removing the appendix we remove the origin of the trouble. Practically, however, in a great many cases this communication between the bowel and the abscess has already been closed by inflammatory processes; while the appendix itself is only one among many equally potent sources of infection. The abscess-walls are infiltrated with germs and the coats of the bowel are softened, and through them infection is constantly being added. Removal of the appendix does not remove these sources of infection, while the tearing of the adhesions and the manipulations necessary to removal of the appendix liberate these germs from the abscess-walls, inhibit the power of resistance of the tissues, and increase the transmigration of the germs from the bowel. In my paper already referred to I say: "The complete and permanent recovery of the patient after removal of the appendix in no small measure depends upon the treatment of the stump. The ideal method seems to be that in which the stump, after ligation, is turned into the cecum and buried by Lembert sutures as described by Senn,[4] and described and illustrated by Morris in the *New England Medical Monthly*, April, 1893, p. 331. Indeed, I am convinced by a careful study of all the literature upon this point accessible to me that, unless the stump be thus treated or in some way be covered by peritoneum after ligation, the removal of the appendix leaves the patient in great danger of perforation." I am still of the opinion that this ground is well taken. This treatment of the stump is not practicable in the class of cases under discussion; hence, in them fecal fistulæ are but little if any more uncommon after appendisectomy than after incision and drainage.[1]

By removing the appendix we unquestionably remove one source of infection, and therefore it should be removed if it can be done without additional risk. However, in the majority of cases of the class now under discussion the advantages over incision and drainage that removal of the appendix offers are more than counterbalanced by the risks that it adds.

Another objection to too close adherence to the "ideal" operation is that it must inevitably lead to unnecessary operations. Not every collection of pus in the right iliac region, even in males, has its origin in the appendix. I saw a case at Defiance, Ohio, in consultation with Dr. Thatcher, in which a diagnosis of appendicitis with abscess had been made. I concurred in the diagnosis, but the man refused operation. He died in a few days, and an autopsy showed the appendix healthy, the pus being due to ulceration of the cecum. Rushmore[2] reports a similar case. Murphy[3] reports a case of total destruction of the mucous membrane of the colon, with a large abscess.

I think we are warranted in concluding as follows:

1. All cases of appendicitis do not require operation; on the contrary, some cases are best treated without operation.

2. In cases requiring operation the appendix should be removed: (*a*) when there is no pus; (*b*) when an endo-appendiceal abscess is present; (*c*) as a rule, when there is a peri-appendiceal abscess that requires drainage through the general peritoneal cavity; and (*d*) when there is general peritonitis without adhesions, with the exception noted.

3. A simple incision should be made and drainage provided in cases with circumscribed abscess, when this can be done without opening the healthy peritoneal cavity. An exception should be made to this rule in cases in which the removal of the appendix will not add to the gravity of the operation.

47 WEST WAYNE STREET.

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***Dr. James Ash***, of Philadelphia, died of pneumonia at Asbury Park, N. J., on September 2d, at the age of seventy-seven years.

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[1] Boston Medical and Surgical Journal, August 4, 1892.
[2] Annals of Surgery, May, 1895.
[3] Loc. cit.
[4] Journal of the American Medical Association, Nov. 2, 1889.

[1] The only fecal fistula that I have had in my own practice was after an appendisectomy in a pus-case. It closed, however, in a short time.
[2] Annals of Surgery, vol. xix, pp. 577, 578.
[3] Journal of the American Medical Association, March 3 to 24, 1894. Case 125.

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## CHRONIC GONORRHEA AND MARRIAGE.

BY FRANK P. VALE,
OF WASHINGTON, D. C.

IN looking over this subject one finds very little to guide him in giving advice to chronic blennorrhagics who wish to marry. There is ample evidence, however, of the danger of infecting the wife under such circumstances. Nearly a quarter of a century ago Noeggerath called attention to the important part played by chronic or latent gonorrhea as a cause of pelvic troubles in the female, and, although adversely criticised at the time, his views are now regarded as being in the main correct. It is well established that long after apparent cure men may infect their wives. The infection does not always manifest itself as an acute vulvovaginitis. The first symptoms complained of may be due to a metritis, which has developed slowly and insidiously, the inflammatory process extending finally to the tubes and ovaries.

The rules laid down by Finger with regard to chronic gonorrhea and marriage are generally accepted. Janet, however, regards them as being in some respects superfluous, and in others as not sufficiently strict and rigorous. An interesting case, bearing upon this subject, is reported by Brewer.[1] He was consulted by a gentleman contemplating marriage, who had had an obstinate attack of gonorrhea six years before, but who had been free from symptoms for the last three years, with the exception of occasional slight moisture at the meatus. Examination of his urine showed shreds in which gonococci were found. He married, contrary to advice, and two weeks after the ceremony his wife developed an acute gonorrhea.

Brewer accepts Finger's rules, viz.: that daily examination of the shreds in the urine for three weeks show neither gonococci nor pus-cells; that a purulent discharge caused by irrigation of the urethra with a solution of mercuric chlorid or of silver nitrate show no gonococci; that there be neither stricture nor prostatitis. Brewer's own rule had previously been to wait until three months after the subsidence of all acute symptoms, examination of the shreds not showing the presence of any gonococci. Finger lays especial stress on the requirement that pus-cells should be absent from the shreds, adding that after long and laborious examinations with negative results the gonococci may suddenly appear. He most urgently cautions against depending on ordinary bacteriologic examinations, and does not allow marriage until pus-corpuscles are absent from the shreds. A case that is still under my care has impressed upon me the value of this advice, and more particularly the necessity of avoiding the conclusion that gonococci are absent until certain therapeutic reactions, which are especially advised by Janet, have been employed, and the secretions of the resulting recrudescence carefully and repeatedly examined.

Mr. A. was sent to me July 8, 1895. Three months before he had contracted gonorrhea. He was to be married in the latter part of August. From the examination of his urine and the history of his case, I concluded that the inflammation had extended posteriorly. After the first jet the urine was uniformly cloudy. Examination of the shreds showed no gonococci. There was a slight succulent narrowing about the middle of the penile urethra. For three weeks I daily passed the largest sound his incised meatus would admit, practised urethrovesical lavage daily with from 1:5000 to 1:2000 potassium-permanganate solution. After the cloudiness of the urine had disappeared I also made instillations of copper sulphate 1:20, following each permanganate lavage. At the end of three weeks the urine was free from shreds. The next day, Sunday, the patient did not report. On Monday he came with a profuse discharge, which showed typical groups of gonococci in every twenty or thirty cells. The two-glass test showed clear second urine, proving his posterior urethritis to have been cured. I attribute this fortunate recrudescence to the man's having eaten crabs, the only unusual article of his diet on Sunday. It had been fully three months since all acute symptoms had subsided. During three weeks there had been no gonococci, only two or three atypical cocci here and there in the specimens examined. In view of these facts, and with daily washing of the entire urethra with permanganate solutions (supposed to be almost specific against these germs), I am afraid I should have given my consent to his marriage at the appointed time, a course that would undoubtedly have resulted in infection of his wife.

Janet has given us some valuable advice on this subject. He takes exception to the rules of Finger in some respects. He does not think it necessary that leukocytes be absent from the shreds, having seen them in the mucous flakes in the first jet of morning urine in healthy men. They are found, moreover, a long time after a cured gonorrhea. What Janet[1] insists upon, next to the absence of gonococci, is the absence of late secondary infection by diverse organisms, and also of that state of receptivity which predisposes to late secondary infection, and follows as a result of the injury done by the gonococcous invasion.[2] In his latest article[3] Janet revises this opinion somewhat,

[1] Journal of Cutaneous and Genito-Urinary Diseases, March, 1891.

[1] Annales des Maladies des Organes Genito-Urinaires, 1892, pp. 275 et seq.

[2] Ibid., 1893.

[3] Ibid., 1895, pp. 481 et seq.

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and instead of forbidding marriage until the urethra has been demonstrated to have recovered from this susceptibility to secondary infection, he allows marriage as soon as the patient is rid of his gonococci and secondary infection, provided the latter agrees to follow instructions given him to prevent late secondary infection.

Janet divides chronic blennorrhagics, with reference to marriage, into two classes: disinfectable and non-disinfectable. With regard to gonococci, he thinks the number of cases in which the patient cannot be freed from his cocci is rendered exceedingly small if permanganate irrigation is practised and if extra-urethral foci be removed when they are found to exist. If the urethral and prostatic glands do not empty themselves they may contain such foci. Under these conditions, massage and expression of the prostate and urethra immediately after micturition will bring to the meatus the retained secretions of these glands, in which gonococci will be found. Disinfection of these foci is accomplished by thus emptying the glands before each lavage. Ordinarily these glands empty themselves and are not without the sphere of disinfection by the permanganate irrigation. Of course, there may be cases, as in infection of the vesiculæ seminales, in which it may be difficult or impossible to remove all foci.[1]

Without underrating the importance of miscarriages and the sequelæ of confinements as causes of metritis and salpingitis in young married women, and considering the enormous number of such cases, and the large number in which gonococci cannot be found in the husband, the question of secondary infection becomes of capital significance. In non-disinfectable cases in which secondary infection by diverse organisms has extended to the prostate, bladder, and possibly even to the kidneys, marriage should be prohibited just as much as in cases of uncured syphilis. In those cases in which secondary infection has been cured by immediate and proper treatment by irrigation with a solution of mercuric chlorid, the urethra is for months abnormally susceptible to invasion by diverse organisms normally present in the vagina. These organisms, after gaining vigor in the new soil of the male urethra, are capable of infecting the woman, especially at certain times when she is unusually susceptible, as after confinement and miscarriage. Therefore, if a patient marries whose urethra is entirely rid of all organisms, but in whom this abnormal receptivity still exists, he should take certain precautions to avoid infecting his wife. After each coitus he must prevent infection of his urethra by disinfecting his meatus with a solution of 1 : 1000 mercuric chlorid. Moreover, if a drop of secretion appears at the meatus at any time he must cease conjugal relations until a bacterioscopic examination has been made, and, if necessary, his urethra should again be disinfected.

Janet is of opinion that these recrudescences from late secondary infections are what give rise to the quite widespread belief that gonorrhea is never cured. The matter of demonstrating the absence of gonococci and other organisms is very important. If cocci are not found in the discharge or shreds, it is not to be concluded that they are absent. A recrudescence can be induced by irrigating the anterior urethra with 1 : 20,000 solution of mercuric chlorid or a 1 : 1000 solution of silver nitrate, or, what Janet believes is just as efficacious, if gonococci are present, by having the patient drink beer. If, after repeated examinations, no gonococci are found in the purulent discharge thus induced, the glands of the prostate and urethra should be expressed, and, if these contain any foci, the retained secretions will be forced out and brought to the meatus. Furthermore, in looking for other organisms, the urine should be examined for any cloudiness of the second part which does not clear up on heating or the addition of acetic acid. If the bladder is infected, the organisms will be numerous in the sediment of the second urine. In giving a decision the recognition of gonococci arises. Guiard[1] considers their classic form, site, and arrangement as diagnostic, quoting Steinschneider to the effect that there is a chance of only 1 in 20 of thus mistaking various varieties of diplococci for gonococci. Like the true gonococci these pseudo-gonococci decolorize when stained by Gram's method, but, as shown by Albert Hogge,[2] they decolorize more slowly. Successful cultivation on ordinary media is indicative of pseudo-gonococci, while positive results with the serum of Wertheim and negative results with ordinary media are decisive in favor of true gonococci. It is only by carefully following such suggestions as the foregoing that we can hope to give reliable advice to chronic blennorrhagics who wish to marry. It is certainly preferable to be overcautious than to take the chances of the disastrous consequences that follow ill advice on this very important subject.

[1] According to Alexander (Journal of Cutaneous and Genito-Urinary Diseases, August, 1891), suppurative vesiculitis is exceedingly common, being often mistaken for posterior urethritis. The condition would be recognized in the following manner: The patient having urinated and cleared his urethra, a finger is inserted into the rectum, and, reaching with it above the vesicle, first on one side and then the other, an endeavor is made to milk out its contents. The patient now urinates a second time. If suppurative vesiculitis is present, the urine will contain pus, a little blood, and spermatic fluid.

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***The Chair of Pathology*** in the Faculty of the Jefferson Medical College in Philadelphia is vacant.

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[1] Blennorrhagie Chez l'Homme.

[2] Annales des Maladies des Organes Genito-Urinaries, 1893, pp. 281 et seq

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# CLINICAL LECTURE.

## CHOREA.

BY CHARLES CARY, M.D.,
PROFESSOR OF MATERIA MEDICA AND THERAPEUTICS, UNIVERSITY OF BUFFALO.

[Clinical lecture delivered at the Buffalo General Hospital.]

THIS child is ten years old, with nothing significant in the family history. She has had scarlet fever and measles. Two years ago she was treated in the hospital for malnutrition, and also received attention from Dr. Putnam on account of some nervous trouble. After remaining in the hospital for five or six months the child went away, improved. Last November she was again received into the hospital on account of rheumatism, complicated with what, for the present, we may call twitchings, and recovered after a month. On February 26th she re-entered with the same nervous phenomena, which had returned about Christmas. There was also noticed at the time of the first examination a heart-murmur, and the girl was very anemic. The child, as you have observed, answers my questions intelligently, corroborates the information given in the history and informs me that she has St. Vitus' dance. She says that she has no pain, but that she cannot stand still. By force of will, however, she can keep still for a minute, but the movements seem more irregular after this effort. Her gait is peculiar and shows a certain lack of muscular control.

Usually, the twitchings of this disease are seen in the face, especially in children at the critical age of puberty. I remember a companion of mine in boyhood who would make a peculiar contraction of the face and mouth that led us to give him the name of "the fly-catcher." Often the earliest manifestation of the disease consists in certain uneasy movements, which lead to reprimands at school or at home for awkwardness, or what is supposed to be unruly conduct. Children are often made worse by being ridiculed and scolded for these nervous phenomena, which are not recognized as constituting a disease.

This child has a mild form of the disease. She can pick up a pin without much trouble and she can control the movements temporarily, a fact that is characteristic of mild forms of the disease and that enables us, in some cases, to distinguish it from other forms attended with tremor or spasmodic movements. If she had St. Vitus' dance in a severe degree, she would find it impossible to pick up a pin, especially when making a conscious effort in the presence of such an audience as this, and she would be unable to control the movements even temporarily. As the patient is stripped to the waist you will notice a twitching of the arms and shoulders. These movements cease during sleep, even in the worst grades of chorea, though the disease may be so severe as to make sleep almost impossible.

The disease is most likely to attack children who are ill nourished, though it does not always spare those of the wealthier classes. It is also interesting to note that the disease occurs in connection with rheumatism, as in the present example. The essential cause of the disease is not known, but it seems to be a disturbance of the central motor powers. On account of the frequency with which somewhat similar symptoms are found to be due to small emboli, the same cause has been assigned for chorea; but this view has not been substantiated by autopsies, though we do not, as a rule, expect choreic patients to die. Last fall the child had an attack of rheumatism, beginning in October and lasting well through November. The feet and legs were swollen and the knees were red and painful, so that the girl was confined to bed for a week before she came to the hospital. On careful questioning I learn that she had these motor symptoms at that time too. I believe it is an open question whether the chorea was due to rheumatism, or whether what was here and has been in other instances called rheumatism is really a general infection due to the choreic disease. We are gradually coming to the belief that chorea is an infectious disease, or, at least, due to some indirect infection. It is not limited to the human race, but occurs also in dogs after distemper and, perhaps, occurs in other animals. In this case, as often happens, a heart-murmur was discovered. Such murmurs have been considered merely anemic; they have also been ascribed to the rheumatism to which the chorea bore simply the relation of a complication; but I believe they represent an essential choreic involvement of the heart-muscle. If we are inclined to the theory that chorea is an infectious disease, we may make a comparison with scarlet fever and gonorrhea, which involve the joints very much as does rheumatism. In all these diseases we must consider the cardiac involvement as analogous to that of the joints, as there is a similarity between the endocardium and the synovial membranes. There is no disease more frequently complicated with endocarditis than chorea—or, perhaps, it would be more accurate to say, there is no other disease consisting so distinctively in part of endocarditis. At present there is no murmur to be detected in this heart, though the first sound is loud and a little prolonged.

Rarely chorea occurs late in pregnancy, and it is then a serious malady, often threatening the life of the woman and necessitating the consideration of the advisability of inducing premature delivery to remove the source of irritation. When I was an interne in the Rochester City Hospital, a young French primigravida was admitted. Barring slight choreic movements, she was perfectly well; but during the several weeks she remained in the hospital the movements increased and her condition became grave. As the time for delivery approached she had to be confined to bed; and, in spite of our efforts to protect her, she would bruise her elbows and knees by the violence of the spasms. She actually wore the skin off from her shoulders and the hair from the back of her head by her constant twitchings and rubbing movements. The last scene was the most interesting. The beginning of labor seemed only to aggravate the choreic movements. I was alone in the hospital, so far as help was concerned, except for the presence of a good, strong nurse, of the old-fashioned type, and we were unable to hold the patient still. In her writhings she threw herself upon the floor, and she and I finally delivered the child on the floor under the bed. She left the hospital after the usual puerperium, quite restored to health.

Chorea usually tends to perfect recovery, but it is likely to recur once or twice in the course of the first year or two after the primary attack. This child suffered from chorea two years ago and has returned to us after

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an attack in the interim of what was called rheumatism, but which was accompanied by twitchings, and which was, probably, choreic in its nature. Fatal cases rarely occur, but the disease is serious when it occurs in children already suffering from malnutrition and when it attacks a pregnant woman.

A hospital is not the ideal place in which to treat such a case, but in the present instance, as in too many others, the hospital is far superior to the child's home-surroundings. The treatment should be largely of a hygienic nature and the patient should be out of doors as much as possible. The child must not only be allowed an abundance of pure air, but it should be permitted a perfect freedom and should enjoy itself as much as possible. Unless the patient is more than usually susceptible to ridicule it should play with its companions and be encouraged to have outdoor enjoyment. Still it must be remembered that nervous children are likely to acquire a similar twitching, not through infection, but through imitation. The only medicine that seems to do any good, so far as the permanent relief of the affection is concerned, is arsenic. This acts by improving the nervous tone, though in what way we do not know. Iron should be combined with the arsenic when there is anemia. The usual way of administering arsenic is in the form of Fowler's solution of potassium arsenite, beginning with three drops three times a day and running up, drop by drop, to the full degree of tolerance, as indicated by a slight puffiness under the eyes, and, perhaps, by slight colicky pains and looseness of the bowels. If the muscular movements are extreme, the main dependence is upon potassium bromid. If sleep is interfered with by the choreic movements, chloral may be given, though this drug must always be administered with caution. Cimicifuga has had a great reputation, but I have never been sufficiently convinced of its value to try it. Electricity has also been recommended, but I have very little faith in this remedy. Bathing is often of value, and various symptoms may call for special consideration.

## CLINICAL MEMORANDUM.

### *REPORT OF A CASE OF ADDISON'S DISEASE, WITH REMARKS.*

BY H. W. McLAUTHLIN, M D.,

OF DENVER, COLO.;

PROFESSOR OF MEDICINE IN THE UNIVERSITY OF COLORADO; VISITING PHYSICIAN TO THE ARAPAHOE COUNTY AND TO ST. LUKE'S HOSPITALS.

MISS ELIZABETH H., aged forty-seven years, white, a native of Ireland, resident of Canada before coming to Colorado, engaged in housework, was admitted to the Arapahoe County Hospital on May 31, 1894, in the service of Dr. Henry Sewall. The following history, taken at the time, is prepared from the hospital-records: The family history was negative. The patient was always well till the age of twenty years, when she was sick about three weeks with so-called congestion of the lungs. In 1889, when forty years old, she first noticed a discoloration on the forehead, which gradually deepened and spread over the body. She was confined to bed all of that summer, (probably from weakness, although the history does not state). She suffered from constipation and pain in the lower part of the back. From that time she had been up and down all the time. The least exertion caused great prostration, with pain in the back and sides. The face presented a uniform, dark discoloration, with areas of much deeper brown. The color was particularly dark and uniform over the neck, forearms, and backs of the hands. On the body and lower limbs the color was lighter, but deepened again on the abdomen, over the backs of the hips, and the inside of the thighs. The tongue was streaked with dark pigment, especially on the edges, as if the patient had eaten blackberries. She complained of tenderness over the left chest and the abdomen. Nothing abnormal was discovered in the lungs. The heart-sounds were weak, but otherwise normal. The abdomen was flat, with marked aortic pulsation. The lumbar curve of the spine was increased. The urine showed a specific gravity of 1012; the reaction was alkaline; but the fluid contained no albumin or sugar. After remaining in the hospital five-and-a-half months the woman was discharged on November 14, 1894, from the service of Dr. Fisk, the record bearing the inscription "no change in condition."

During her stay in the hospital the pulse varied between 76 and 98, averaging about 84, the respirations averaging about 21. The temperature-chart showed an evening rise of from one-half to one-and-a-half degrees during a considerable portion of the time. The bowels were constipated, with occasional attacks of diarrhea. The patient was readmitted to my own service on March 24, 1895. She was then completely bedridden, while anorexia and vomiting were prominent symptoms. She was extremely weak and much emaciated. The heart-sounds and pulse were very feeble. The pigmentation had deepened, especially in small spots over the body, and it was particularly marked on the tongue. The urine was slightly alkaline, otherwise normal. The pulse was 94. In the epigastric region there was a circular area yielding dulness on deep percussion and hard and immovable on palpation. This was thought to be connected with the spine. The woman sank steadily and died April 9, 1895.

Two days later Dr. Leonard Freeman, pathologist to the hospital, performed the postmortem examination. The body was that of an emaciated white woman, between fifty-five and sixty years of age apparently, presenting marked postmortem rigidity and staining. The skin of the entire body was markedly bronzed, more especially about the hands, arms, neck, face, and tongue. The tongue was quite dark in color, while the mucous membrane of the mouth was but slightly altered, excepting for a bluish discoloration along the gums. There were a number of small dark-brown spots, like freckles, scattered over the face and body. The subcutaneous fat was unusually yellow and over the abdomen was from one-and-one-quarter to one-and-one-half inches thick, notwithstanding the general emaciation. Owing to a marked bending forward of the vertebral column a hard projection within the abdominal cavity could be felt externally. The right lung was universally bound by old adhesions, especially at the apex, where there was a nodular mass of tuberculous material, caseous and fibrous in character. The bronchial glands were enlarged and tuberculous. The left lung was also tuberculous. The heart was small and flabby, with dilated vessels, the valves negative and free from atheroma. The walls of the left ventricle were thin, while the heart-muscle was

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firm and very brown in color. The left suprarenal capsule was much atrophied. There was a caseous, slightly calcareous, tuberculous nodule, the size of a hazelnut, at the internal and superior angle of the capsule; also a second small caseous nodule, the size of a pin's head. Around these nodules there was considerable fibrous thickening of the adjacent tissue, making a deposit adherent to the spine. The right suprarenal capsule was also considerably atrophied and presented two caseated nodules, each about the size of a grain of corn. The left kidney was surrounded by considerable fat and was slightly smaller than normal, while the capsule was somewhat adherent, leaving on removal a finely granular surface. The cortex was about one-fourth the usual thickness. The entire kidney was congested and in a condition of chronic interstitial inflammation. The right kidney was similar, but had more extensive adhesions of the capsule. There was no thickening of the nerves, or tumors of any kind, to be felt in the region corresponding to the suprarenal capsule. The spleen was slightly enlarged, but otherwise normal. The liver was one-fourth smaller than normal, the edges slightly rounded. Its tissue did not cut readily, and was considerably firmer than normal, while the color was darker. The gall-bladder and the bile-ducts presented no evident obstruction. The lower few feet of the small intestine were negative. The uterus was small; the ovaries and tubes negative.

Addison first described, in 1855, the disease that bears his name. He gave as the general symptoms, anemia, general weakness, especially a weak heart, together with irritability of the stomach and a discoloration of the skin. These have remained the principal symptoms, except that anemia is no longer prominently placed in the list. That the disease is rare in America is shown from the fact that Osler, in 1892, had seen only eight cases, including his work at the bedside and the post-mortem table.

Males are about twice as frequently affected as females. The age is that of young adults, or from twenty to forty years. One congenital case has been described.

In a majority of cases tuberculosis of the suprarenal capsules, and often of other parts of the body, especially the lungs, is present. In such cases the capsules are thickened and contain cheesy masses encased in thick fibrous tissue. Blows on the abdomen or over the kidneys and caries of the spine have so frequently preceded the beginning of the morbid process in the capsules as to merit an etiologic relationship.

Other pathologic conditions of the capsules sometimes found are atrophy from interstitial cirrhosis and malignant disease. The fibrous thickening that encases the capsules usually extends so as to involve adjacent nerves and ganglia of the abdominal sympathetic system, causing their compression and atrophy.

Based upon the pathologic changes mentioned, two theories are advanced to explain the characteristic symptoms of this disease: First, that, owing to the function of the adrenals being lost, the system is poisoned by the retention and circulation of some unknown substance that the adrenals should have eliminated or altered; second, that the symptoms are due to a disease of the abdominal sympathetic system, which is caused generally by disease of the adrenals, but which may also be caused by other chronic diseases involving the solar plexus and its nerves. In support of this theory is mentioned the pigmentation of the skin seen in tuberculous peritonitis, carcinoma of the pancreas, abdominal aneurism, and so on. It seems highly probable, however, that without the adrenal disease the complete group of symptoms characteristic of Addison's sickness is never found. Both of the foregoing explanations may be correct, and both may be concerned in the production of the disease.

The first symptom to attract attention is generally the pigmentation of the skin. This varies from a light brown or smoke-color to black. It is diffuse, but is distinctly more marked on the exposed parts of the body, and where pigment is naturally present. As in the case reported, there may be small isolated spots that are distinctly darker. The face and the backs of the hands are early affected. The mucous membrane of the conjunctivæ, mouth, and vagina is pigmented. Even the serous membranes may be discolored in patches. On the other hand, an occasional case, which is otherwise typical, may show no pigmentation. Such a case is reported[1] by Dr. Warren Coleman, of New York. Adrenal disease was not suspected during life.

The patient was a Danish sailor, thirty-six years of age, who entered Bellevue Hospital on account of constipation. Death took place about three weeks later, without any assignable cause. During his stay in the hospital the man attracted attention only as a case of obstinate constipation, with marked inanition. No interpreter could be found, so the history was not obtained. There was marked asthenia without apparent cause. The temperature was at no time over 101°. The heart's action was feeble and the superficial circulation was poor. The constipation continued, in spite of vigorous treatment, up to the time of death. There is no record of alternating diarrhea.

At the autopsy the body was found anemic, but not much emaciated. The heart weighed nine ounces, and its walls were pale. The valves were normal. The right lung was bound to the chest-wall by a few old adhesions. The upper lobe contained several tuberculous masses of considerable size in a state of caseation, while throughout the middle and lower lobes a few small nodules were found. The left lung was in a similar condition. The bronchial glands were enlarged and cheesy at the center. The left adrenal body weighed one-and-a-half ounces. Its original shape had been entirely lost. On section it was found to be caseous, and greenish-yellow pus exuded from several points on the cut surface. The cheesy matter had become calcareous at many points. The capsule was much thickened. The right adrenal was one-half the normal size, and weighed one-half ounce. It contained one large and numerous small calcareous masses. Microscopic examination showed the process to be tuberculous. The skin and the mucous membrane of the mouth were carefully examined, but no evidences of discoloration found. No sufficient cause for death, aside from the condition of the adrenals, could be determined. The appearances presented by the adrenals left no doubt that they became infected prior to the lungs or bronchial glands.

Dr. Coleman states that he has systematically examined the adrenal bodies in all the autopsies that he has performed in Bellevue Hospital for two years (the number

[1] Medical Record, November 3, 1894.

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is not stated), and this is the first instance in which he has found them tuberculous, although many cases showed extensive tuberculosis in other parts of the body. Unfortunately, in this case the semilunar ganglia and the abdominal sympathetic nerves were not removed for examination. The important deduction from this observation is, that tuberculosis of the adrenals, *per se*, even though both glands be entirely destroyed, is not productive of skin discoloration.

The *Medical Record* of September 9, 1894, contains the report of a case of Dr. Lazarus, of Berlin, in which a child, aged three-and-a-half years, died from a tumor of the left adrenal. The tumor represented one-third of the entire weight of the child, which was thirty-seven pounds. Sarcomatous degeneration of the tumor had begun. During life there was no discoloration of the skin. This case goes to show that malignant tumor of an adrenal may exist without pigmentation of the skin.

In Addison's disease spots of leukoderma, or absence of pigment, are sometimes seen. Gastro-intestinal disturbances, especially nausea, vomiting, and diarrhea, suddenly occurring in persons otherwise habitually constipated, are common. There is a tendency to faint, together with headache, as well as pain in the epigastrium and hypochondria. Over and above all is the marked asthenia, without which the diagnosis is uncertain, for pigmentation may occur in other diseased conditions, especially with abdominal tumors, as tubercles, carcinoma, or lymphoma. It is quite frequently seen with tuberculous peritonitis.

In pregnancy and in uterine disease patches of pigmentation are common.

In disease of the liver, and even in cases of deranged activity of this organ, patches of staining are often seen about the face and forehead. Irritation of the skin by pediculi and dirt, sometimes called vagabond's discoloration, must be remembered. In rare instances the skin has been so deeply discolored in melanotic carcinoma as to be mistaken for Addison's disease. In exophthalmic goiter patches of pigmentation and leukoderma are common.

These various sources of pigmentation must be excluded and asthenia must be present before making a diagnosis of Addison's disease. After death the abundance of fat in the abdominal wall, in marked contrast with the general emaciation, has been frequently noted. The liver and spleen are often enlarged, as well as Peyer's patches and the mesenteric glands.

The prognosis is bad. Death may occur in a few weeks, especially when bronzing of the skin is slight or absent, and great prostration, vomiting, and diarrhea are present. It would seem easy to confound such a condition with typhoid fever or acute tuberculosis. Usually, however, the disease is protracted, lasting months or even years. In the longer cases periods of improvement may occur and hope be raised as to final recovery. Sooner or later, however, exacerbations are sure to occur, and the end is always the same.

In the present state of our knowledge of Addison's disease the treatment must be symptomatic. In general it is to husband and, if possible, to increase the patient's strength.

For obvious reasons cases are seldom diagnosticated until they are far advanced. At this stage quiet and, in some cases, absolute rest in bed are necessary, for sudden death in a number of instances has apparently taken place from syncope induced by slight exertion. The diet should be light and nutritious. Milk is often the best food. Arsenic and strychnin, iron, if there is anemia; ice, champagne, and hydrocyanic acid for the irritable stomach; bismuth for diarrhea, may all be used when indicated. If there is constipation, mild laxatives should be chosen which will not disagree with the stomach.

When the function of the adrenals shall be better understood important additions to our present knowledge of the etiology and treatment of Addison's disease will follow. Within the past two years a remarkable amount of thought has been directed to the ductless glands of the body, and the adrenals have not escaped investigation.

Oliver, especially, has been working with extract of suprarenal capsules, and has found that, in case of human beings, it is capable of producing an increase of vascular tone and a diminution in the size of the arteries. In other words, its effects are contrary to those of thyroid extract. Experimenting on animals, this investigator has shown that both alcoholic and aqueous extracts of the adrenals contain a powerful substance, which, on injection in extremely minute doses, produces remarkable physiologic effects upon certain parts of the nervous, muscular, and vascular systems.

Whether this is a useful substance, made by the adrenals from the blood, to be used as required to affect the circulatory system, or whether it is a poison carried to the adrenals for them to render harmless, is, according to Oliver, not yet known.

The therapeutic value of the animal extracts and other products of the animal system is perhaps not yet fully known or acknowledged. Enough, however, has been demonstrated in this direction to justify the hope that light will soon be shed on the treatment of Addison's disease.

## THERAPEUTIC NOTE.

### *THE ANTISEPTIC TREATMENT OF TYPHOID FEVER WITH THE CHLORIN-QUININ SOLUTION.*[1]

BY EMIL KING, M.D.,
OF FULDA, MINN.

IN a section of country like this one, where typhoid fever is met with a good deal every autumn, a knowledge of the most successful and at the same time the easiest treatment to carry out is necessarily very important. The younger members of the profession will bear me out in the statement that about all we are taught in regard to the treatment of this disease in the great medical seats of learning is that drugs are to be spurned and that the Brand or cold-bath treatment is the only proper thing. When, however, the practitioner in the country and smaller towns attempts to apply this method he is met by the prejudice of the laity and the expense, as trained nurses and bath-tubs are not within the means of the mass of the people. Thus we are forced to adopt some other line of treatment, and I am pleased to say that we have one that not only meets the requirements,

[1] Read before the Southwestern Minnesota Medical Society at the semi-annual meeting held at Fulda, July 11, 1895.

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but gives better results and is more pleasant than the Brand plan.

In looking over the literature of typhoid fever for the last decade, one is surprised at the long list of drugs employed; prominent among them we find the coal-tar antipyretics and the antiseptics. Of all the various methods of treatment receiving professional sanction the one having antisepsis for its basis seems to my mind the most rational. We all know that in this disease the alimentary canal is a perfect hotbed of bacterial organisms; these are continually producing ptomains and toxalbumins, and both clinical and experimental observation shows that these poisons are absorbed and cause many of the symptoms of the disease. It seems entirely consistent to believe that bacteria other than the specific one cause much of the putrefactive fermentation, the fever-poisons, the softening, the breaking-down and perforation of the intestinal walls. None of the advocates of the antiseptic treatment claims that we can obtain an aseptic condition of the intestinal walls, but we do claim that we can keep the bacterial growths in small numbers and a low state of vitality, and that the bacterial poisons are very much lessened and consequently are not present to be absorbed. The almost entire absence of bowel-complications among the cases treated by this method seems to prove this assertion.

The antiseptics employed in the treatment of typhoid fever are many, and several have been found of value. Among these I may mention zinc sulphocarbolate, thymol, silver nitrate, salol, and carbolic acid. The main points in selecting one of these is to get a substance that is readily soluble, very diffusible, easily absorbed, is a powerful antiseptic, and which in overdose will cause no harm. The substance that best combines these advantages is, I believe, chlorin. This gas in solution was long ago found of great value in grave forms of ulceration of the throat, and we know that the disinfectant properties of lime depend upon the action of the chlorin present. It is readily absorbed and is not irritant to the tissues. It appears to stimulate the liver, kidneys, and all glandular structures, and cleanses and disinfects the ulcerative lesions of the bowel. Chlorin is superior to all other antiseptics in the treatment of typhoid fever, because it is diffusible, stimulating to glands, aiding elimination, is readily absorbed, and, I believe, more powerful than other available antiseptics. Unlike silver nitrate, zinc sulphocarbolate, salol, and other remedies, it is not decomposed into insoluble salts, and thus does not lose its effect.

The chlorin-quinin treatment was originated by J. Burney Yeo, of London, England, and has been employed by him and others with great success for about twenty years. During last fall and winter I treated in this way twenty-three cases of typhoid fever without a death or serious complication, and I can say that these cases ran a much safer and pleasanter course than those of a year before. The solution is prepared in the following manner: Into a twelve-ounce bottle are put thirty grains of potassium of chlorate, and to this sixty minims of strong hydrochloric acid added; a brownish-yellow gas is given off, and when the bottle is nearly filled with it a small quantity of water is added, the bottle thoroughly shaken, and the addition of water and the shaking being repeated until the bottle is filled. I now add the quinin, usually twelve grains. Syrup may be added in place of the water to improve the taste, though I find this unnecessary, for after taking the medicine for a few days patients do not seriously object to the bitter taste. We now have a solution containing chlorin and other gases, potassium chlorate, free hydrochloric acid, and quinin. The quinin is added for its general antiseptic and tonic properties. We do not wish its physiologic action. It may be given to small children in some other form, though it will not act so well, or it may be entirely omitted if for any reason contraindicated. The dose of the finished solution for an adult is a tablespoonful in half a tumbler of water every two hours. This quantity may be increased or decreased as necessary, the main point being to give enough to make the stools smell strongly of chlorin, to insure its thorough action on the intestinal coats and contents. It is a good plan to direct rinsing of the mouth after the medicine is taken, to prevent injury of the teeth. As soon as my diagnosis is made I order or prepare the medicine and continue its administration until the temperature has been normal for four or five days. For country practice I carry the ingredients and prepare the solution as needed at the bedside. Of course, the best results are obtained if the case is seen early, but even late the remedy will have a good effect.

In comparing the histories of my cases, twelve in number, treated with sponge-baths and other cold applications, antipyretics, salol, turpentine, etc., during the fall and winter of 1893, with those of cases treated by the method here described during the fall and winter of 1894, I find the following points in favor of the latter:

1. The temperature is materially affected, being appreciably lowered. It seldom rises above 102.6° F. after the medicine has been administered for two days.

2. There is an almost entire absence of nervous symptoms. The so-called typhoid condition does not develop. The patient is usually able to get considerable sleep and the headache soon disappears. In a case seen during May and June, 1894, the typhoid condition was very marked, and the patient was entirely oblivious to surroundings for over a week. This case was treated with sponge-baths and zinc sulphocarbolate and salol, and though at death's door for weeks, thanks to a magnificent constitution, recovery finally ensued.

3. The general condition of the alimentary canal is much better. The foul tongue clears to some extent, so that it may even lose its peculiar character; the stomach retains nourishment better; diarrhea is seldom severe; and tympanites does not develop except over a limited area in the right inguinal region.

4. The duration of the disease is distinctly shortened and convalescence is more rapid. Many cases will show a normal temperature by the eighteenth day, few going on to the twenty-fourth. Convalescence is more rapid because the patient is not so weak. Bedsores did not develop in any of my cases last fall, while this complication occurred to me in two cases the year before.

5. Complications are fewer and the mortality is greatly lessened. In none of my cases did any serious complications appear. Two cases had slight attacks of bronchitis, but these were short and were easily controlled. Accurate statistics of the mortality under this treatment are wanting. J. Burney Yeo had seen only two deaths under this treatment up to June, 1894, and he claims to have treated a great many cases. Dr. O'Connor, of Buenos Ayres, S. A., reports one-hundred consecutive

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cases, with only two deaths. In this country the only cases reported, so far as I know, are three by Dr. J. Mosley Kerr, of Columbus, Ohio, and now twenty-three by myself; all without deaths.

In beginning the treatment of a case of typhoid fever seen in the early stage the first thing to consider is absolute rest in bed. The room must be airy, the bed being placed so as to avoid drafts, although ventilation should be free. I also favor plenty of sunshine when not objectionable to the patient. The bed itself should be smooth, not too soft, and the covering need only be light. Cleanly surroundings are always to be desired. I now begin to prepare the alimentary canal, if the state of the fever does not need immediate attention, by ordering a thorough purge, giving one grain of calomel and two of sodium bicarbonate every hour until the desired result is secured, the object being to remove fecal masses and all fermenting substances. I select calomel on account of its stimulating influence on the liver and intestinal glands, and also for its antiseptic effect. The beneficial effect of the purge is shown by a drop in the temperature and a lessening of the abdominal tenderness.

In the management of a case of typhoid fever the food-question early assumes importance. It is now very general to restrict the patient to an exclusive milk-diet; from one-half to three quarts per day is the amount recommended by writers. In my limited experience I have not seen a case that would voluntarily take as much as the latter quantity. The absorbent powers of the gastro-intestinal mucosa are so much impaired that, I believe, this quantity cannot be digested. If physicians will carefully examine the stools of patients taking from three to six pints of milk, they will find that quantity passing away as the "pea-soup" stool; they will also find the curds responsible for much of the diarrhea. According to the pathology of the disease, it should be our aim to afford rest to the inflamed bowel, and to do that we must not give more food than can be digested. Any amount remaining will not only serve as a nidus for fermenting germs, but will induce peristaltic movements, thereby causing diarrhea and also increasing the absorption of noxious poisons. To make milk easier of digestion it should be diluted with water, and drunk only in small quantities at a time. When milk disagrees, buttermilk or icecream may be substituted. Home-made beef-tea and thin gruels and soups must at times be given, as all milk-preparations may disagree. I also permit the use of fruit-juices, as of the lemon and the orange; these form a pleasant addition to the limited diet-list. Tea or coffee may be permitted, as there is no good reason why the use of two such good cardiac stimulants should be prohibited. I make it a rule never to urge the patient to take nourishment as long as he is rational; of course, should the typhoid condition set in, then forced feeding may become necessary.

Of greatest importance in the treatment of typhoid fever is the internal use of water. Always let the patient have all he wants; in fact, the more he drinks the better. Drinking large quantities of water has a calmative influence on the nerve-centers; it assists in the oxidation and elimination of effete matter, the secretions of the kidneys and skin are increased, and the tension of the circulation is relieved. The internal use of water, then, tends to lower temperature, increases elimination, and decreases nervousness. Authorities recommend that from four to six quarts should be drunk daily. My patients would not take that much, but I have them drink over two quarts with their medicine.

Usually, as soon as the temperature drops to normal the appetite returns, and we are besieged with the question, "What can the patient eat?" In practice outside of a hospital we find it difficult to keep the patient on a liquid diet for ten days after the temperature is normal. I usually begin on the fifth or sixth day by permitting the patient to eat a small quantity of toasted bread, an egg prepared according to his wishes, or other food, such as custard, oatmeal, or farina. Soon we can permit small pieces of meat and some vegetables; the diet being brought back to the normal in about two weeks.

Of the special indications perhaps the height of the fever is the most important. It is generally agreed that temperatures over 102.6° F. long continued are dangerous, by inducing depression of the vital centers and a cloudy degeneration of the muscular structures, especially of the heart. This temperature is the line, on crossing which the patient, in all well-ordered hospitals, is now plunged into a cold bath. I agree with Brand and his followers that this procedure powerfully depresses temperature, and at times may be necessary to save life; but I do not believe in subjecting the patient to it three or more times a day, when I can attain the desired result by easier and pleasanter methods. When the temperature rises above 103° F., and this is seldom, I order a cold pack, or sponging of the abdomen and chest, and cold applications to the head. Headache, which so often is due to high fever, is easily relieved in this way; some alcohol or vinegar may be added to the water applied. In cases of hyperpyrexia, when symptoms of danger are present, I should not hesitate to use the cold bath, as it may be the quickest means of saving life. The coal-tar antipyretics in occasional small doses do no harm, but I do not regard them as necessary.

The so-called typhoid condition calls for energetic stimulation; and here good brandy, ether, strychnin, and atropin are of great service. In one case (already mentioned) seen rather late in the course of the disease, I resorted, among other measures, to the rectal injection of tincture of asafetida with marked benefit. Forced feeding by the mouth or rectum may now be imperative, and water to drink must not be forgotten. It is only in this class of cases that I employ alcoholic stimulation, though alcohol is also of value in certain cases as a stomachic during convalescence.

The various parts of the alimentary canal call for constant attention. The mouth and tongue are generally in a bad condition, and frequent washing with an antiseptic solution, such as Dobell's well-known combination, is grateful to the patient. I find that unloading of the bowels, even when there is diarrhea, improves irritability of the stomach; if not, this is treated by the usual methods. Diarrhea is treated by withholding excessive quantities of food, observing the same rules as when treating a case of cholera infantum, the stools being frequently examined for undigested particles, and by the use of such remedies as bismuth salicylate, opium, etc. Opium-suppositories are of benefit to allay tenesmus and at times to induce sleep.

Overfeeding is, I believe, largely responsible for tympanites. The internal administration of oil of turpentine

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and oil of anise will usually relieve the distention; rectal injection of asafetida and glycerol will also be found of benefit; and in extreme cases the passing of a rubber tube into the bowel or even puncture may be resorted to. But these extreme cases are usually fatal. Constipation may be relieved by the use of castor-oil or some other gentle laxative. I am satisfied if the patient has one stool every other day, provided, of course, no symptoms referable to this cause appear. During convalescence the mineral acids and bitter tonics, of which strychnin is the best, are of benefit. In cases of protracted convalescence the internal use of oil of turpentine, as advocated by George B. Wood, is one of the best remedies. I shall not in this article touch upon the complications of typhoid fever.

I cannot resist the temptation of comparing, as I see it, the comparative value of this antiseptic and the Brand method of treatment. The antiseptic plan, intelligently carried out, follows closely the pathology of the disease. We aim to prevent as much as possible the formation and absorption of toxic substances; we keep the alimentary canal comparatively empty, and hence do not have the fermenting and macerating effect on the intestinal ulcers. By doing this we avoid perforative complications, which are so largely responsible for the mortality. Under this treatment the temperature does not often rise above the bath-line; hence this measure is seldom needed. The duration of the disease is materially shortened and convalescence is more rapid. These are the reasons why the general results under this treatment are better than under Brand's. The mortality under the Brand treatment in this country varies all the way from 3 to 16.6 per cent., relapses occurring in about 13 per cent. of all cases, and the duration of the disease being about forty-four days, the most surprising thing being the large number of relapses. I consider the Brand treatment open to the following objections: It is a symptomatic treatment entirely, losing sight of the pathologic indications, as rest and diet, through the bugbear, fever. As at present carried out, the patients are indiscriminately subjected to the same measures, that is, a dose of brandy, ice-water to the head, and immersion in water at a temperature of 70° F. for from ten to fifteen minutes, with friction of the body. Otherwise the patient is treated symptomatically and large quantities of milk are forced upon him. In small towns and in the country this method is difficult to carry out, the nurse usually being some overworked member of the family. Bath-tubs are not found in most of the houses, and they are expensive, though portable ones are made which the physician can purchase for use by his patients. Another important objection is the opposition of the laity, as very many people regard it as little short of barbarism to take a fevered patient from his bed and plunge him into a cold bath. From the outline of treatment given, it may be seen that I do not object to hydrotherapeutics under certain circumstances, but I strongly urge a combination of the valuable points of each, and to treat the disease under consideration, not by its symptoms, but in the light of our present knowledge of its pathology. Does it not seem right to direct treatment to the point where the fever-poisons are generated and thus make a cold bath unnecessary? Those who try it will be sure to see the picture of the disease change for the better.

# MEDICAL PROGRESS.

***Excision of the Rectum for Malignant Disease.***—HEUSTON (*British Medical Journal*, No. 1795, p. 1141) describes an operation for excision of the rectum for malignant disease that he has performed in two cases, and for which he claims that it preserves the normal functions of the bowel, that subsequent stricture is not so liable as after the usual operation, while convalescence is rapid, the mortality is low, and the disease is no more liable to recur than after more extensive operations.

An incision is made from the rectum to the coccyx, which, being in the median line, severs the attachment of the external sphincter and levator ani muscles to the ano-coccygeal ligament. The rectum is now separated from the surrounding cellular tissue and clip-forceps are applied to the rectum at the commencement of the ampulla, below which the bowel is divided. The attachments of the levator and sphincter muscles to the bowel are thus not interfered with and hemorrhage is restrained. The rectum being now completely divided above the internal sphincter, there is not much difficulty in bringing it downward and backward through the median incision, its separation from the prostate and the base of the bladder being facilitated by having to draw it backward. Clip-forceps are applied above the diseased portion, which is removed by scissors. The upper portion of the bowel is fixed by deep sutures, attaching it, about an inch above its cut extremity, to the recto-vesical fascia and levator ani and the peritoneum. In applying these sutures, care should be taken that the mucous coat of the bowel is not penetrated. A second row of sutures is applied between the cut extremity of the bowel and that portion which had been originally left below; these sutures should penetrate the entire thickness of the bowel in both instances. The object of the upper row of sutures is so to fix the bowel as to obviate the danger of the sutures uniting the cut extremities of the bowel tearing through. The incision from the anus to the coccyx is now closed, the most anterior sutures including the posterior aspect of the bowel, but not penetrating the mucous coat. The levator ani and sphincters will thus have their normal relation to the extremity of the bowel preserved. It might be thought that the lower portion of the bowel is in danger of sloughing, owing to the superior and middle hemorrhoidal arteries being cut away from it, but the hemorrhoidal branches of the pudic arteries are sufficient to maintain its vitality.

***Chloroform-anesthesia.***—As a result of a study of the question of chloroform-anesthesia, BRUNTON (*Lancet*, Nos. 3750 and 3751) has arrived at the following conclusions: Experiments on animals have conclusively shown that chloroform given by inhalation and not blown artificially into the lungs kills by paralyzing the respiration. Clinical observation has shown that cases of simple danger without death during anesthesia are due to failure of the respiration. Cases of death may arise from the same cause, but may also be due to stoppage of the heart (syncope) or to stoppage of the heart and respiration together (neuroparalysis). The most common cause of neuroparalysis has been found by Caspar to be throttling, strangling, and drowning, which kill by neuroparalysis as often as by asphyxia. Anesthetics have no

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tendency to produce neuroparalysis except when they are given in such a manner as to irritate the respiratory passages, either mechanically or chemically. On the contrary, they tend to lessen shock. During imperfect anesthesia, both at the very commencement of administration of an anesthetic or during recovery from its influence, choking may occur and cause death by neuroparalysis as well as by asphyxia. The neuroparalysis is the result that is most to be dreaded, as simple asphyxia may usually be recovered from if artificial respiration be maintained. It is, therefore, most important in the administration of anesthetics to avoid anything that is likely to interfere with respiration, as such interference may act like throttling and cause death by neuroparalysis. During complete anesthesia, the reflexes being almost or entirely abolished, there is little risk of neuroparalysis, but the nerve-centers being weak there is more of asphyxia. At the commencement of administration and during recovery, when the reflexes are present but may be deranged, the danger of death from neuroparalysis is greatest, and the respiration then requires to be watched with especial care. Although there may be no objection to the anesthetist keeping his finger on the temporal artery, and thus unconsciously watching the pulse, yet the respiration must be his main care, and anything that will withdraw his attention from it is studiously to be avoided.

***Monarticular Rheumatism.***—HEIDENHAIN (*Deutsche medicinische Wochenschrift*, 1895, No. 31, p. 496) calls attention to the occurrence of cases of articular rheumatism with involvement of but a single joint, and an absence of manifestations of an acute febrile disorder. Pain is present usually, but in slight degree. Other causative affections, such as traumatism, gonorrhea, osteomyelitis, tuberculosis, syphilis, were with certainty excluded and relief was afforded by the administration of full doses of sodium salicylate. In the cases observed the shoulder-joint was most frequently involved; then in the order of frequency the wrist, the elbow, and the ankle. In an additional number of cases two joints were similarly involved. The question is raised whether an insidious endocarditis may not develop in the course of attacks of this kind.

***A Tubercle of the Intima of the Aorta.***—At a recent meeting of the Société de Biologie, HANOT and LEVI (*Compt. Rend. Hebdom. des Séances de la Soc. de Biologie*, 1895, No. 22, p. 471) reported the case of a man, sixty-one years old, dead of tuberculosis, in which at the upper part of the thoracic aorta in the interval between the origin of two intercostal arteries was found a tubercle, of roundish form, grayish color, firm consistency, the size of the head of a pin, and slightly projecting within the lumen of the vessel. Upon section this was found to be a true tubercle, free from vessels, presenting a few giant-cells, together with tubercle-bacilli. The formation was evidently of recent development. Its center was in process of caseation. It was developed in the subepithelial layer of the vessel at the level of the fibrillar substance, which formed about it an incomplete sheath.

***Diplococci in the Blood of Patients with Scarlet Fever.***—CRAJKOWSKI (*Centralblatt für Bakteriologie und Parasitenkunde*, B. 18, Nos. 4 and 5, p. 116) has reported the results of examinations of the blood in thirteen cases of scarlet fever, in which he found, both upon direct examination and upon culture, diplococci, such as he had not observed in a large experience under other conditions. The organisms stained with difficulty, and were readily decolorized. They did not stain by Gram's method. A capsule could not be discovered. The organisms developed readily upon various culture-media. Inoculations of pure cultures were pathogenic for mice, and the same diplococci could be isolated from the blood of these animals.

***Gangrene of an Extremity in the Sequence of Typhoid Fever.***—QUERVAIN (*Centralblatt für Innere Medicin*, 1895, No. 33, p. 793) has reported the case of a man, twenty-five years old, in which in the course of an attack of typhoid fever gangrene of the right lower extremity set in, eventually requiring amputation above the knee. The patient ultimately recovered. On examination of the amputated member the popliteal artery and vein were found occluded by thrombi, and an abscess in the muscular tissues below the knee. Examination of the pus from this collection disclosed the presence of typhoid-bacilli.

## THERAPEUTIC NOTES.

***In the Treatment of Frost-bite*** BOECK (*Monatshefte f. Praktische Dermatologie*, Band xxi, No. 4, p. 171) recommends the following formula:

Take—Ichthyol, Resorcin, Tannic acid, of each . . 1.00
Water . . . . . 5.00—Mix.

Apply with a brush at night.

Should this for one reason or other be objectionable, the following formula may be substituted:

Take—Resorcin . . . . . 2.00
Mucilage of gum arabic, Water . . . each 5.00
Powdered talc . . . 1.00—Mix.

Apply topically with a brush.

***Urotropin*** is the name given by NICOLAIER (*Deutsche medicinische Wochenschrift*, 1895, No. 34, p. 541) to hexamethylentetramin because of its influence upon certain urinary constituents. He has found this agent in solution, as well as the urine of patients to whom it was administered, capable of dissolving uric-acid concretions. The substance appeared also to check ammoniacal fermentation, the urine of individuals using it remaining perfectly acid, and in some instances it acted as a diuretic. An antiseptic effect was also observed. The drug has been successfully employed in the treatment of cystitis. The doses given ranged from seven-and-one-half to ninety grains daily. Large doses were attended with a sense of burning, referred to the bladder on micturition.

***For Pulmonary Tuberculosis.***—Take

Calcium phosphate . . . Menthol . . . each 4 grains.
Sodium bicarbonate . 3 "
Powder of nux vomica, Iron lactate . . each ¼ grain.—M.

To be taken four times a day with food. MARAGLIANO—*Journal des Praticiens*, July 27; *Med. Chron.*, August, 1895.

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OF MEDICAL SCIENCE.

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SATURDAY, SEPTEMBER 14, 1895.


## *INEBRIETY.*

DR. NORMAN KERR is among the foremost of those who regard inebriety as a disease. He has written an elaborate treatise on this subject, and the third edition of this work, now before us,[1] is undoubtedly the most representative work on the subject in the English language.

The difficulty that we experience in following Dr. Kerr is chiefly in grasping firmly his idea of what really constitutes the disease which he denominates "inebriety." This term, as connoting a distinct morbid entity, has always been somewhat of a will-o'-the-wisp to us, and we confess that it remains so after a study of Dr. Kerr's book. We do not wish to appear to be behind anyone in recognizing the baleful pathologic effects of alcohol upon the human system. That it is a most potent poison, with well-recognizable anatomic changes in its train, is among the fundamental facts established by modern pathology. Just as syphilis, gout, and rheumatism work their characteristic havoc upon tissues, so does alcohol. This fact goes without saying. But the method of approaching the study of the effects of alcohol differs with some writers, among whom Dr. Kerr is prominent, from that which is customary and legitimate in the study of the effects of these other pathogenic substances. It is this distinction that we wish to point out, because it is emphasized to our mind in Dr. Kerr's book.

This distinction may be said to be shown in the fact that Dr. Kerr and his followers take an apriori view of inebriety. The approved methods of modern science lead to a study of particulars, and from them to the formation of a general conclusion. We study symptoms first before we begin to construct a picture of a disease. The ravages of syphilis have for years been depicted by master-minds until now we have a tolerably distinct clinical picture of what is meant when we speak of a syphilitic patient. The same statement may be made of the ravages of alcohol as studied by the general pathologist. The effects of the poison on nervous, gastric, hepatic, and renal tissues are recognizable; they constitute, in a sense, a morbid entity—the complexus of the results of the action of the poison.

This method of study is not exactly that of the followers of Dr. Norman Kerr, although they avail themselves of it as an adjuvant to their own lucubrations. Dr. Kerr, as we have said, pursues primarily an apriori method. He constructs, first of all, the image of a disease, and then he groups about it the findings of pathology. This prior image is the hypothetic entity which he calls "inebriety." This disease, if we read Dr. Kerr correctly, is preexistent to the specific effects of alcohol. It may, in fact, although the expression seems paradoxic, exist entirely independent of indulgence in alcohol. It is something innate in the subject—a potentiality, a pathologic analogue to original sin. This seems to us to be rather a theologic or metaphysical method of contemplating disease. The *corpus morbi* pre-exists in the tissues, based upon heredity and fortified behind the postulate that the sins of the fathers are visited upon the children to the third and fourth generations. A tippler *in embryo*, the unlucky wight grows into a sot *in posse*, lives as a drunkard *in essentia*, and may or may not become a guzzler *in esse;* but all the time he is an "inebriate." We are not aware of any other department of medical science in which this method is followed, except by some extremists in psychiatry and by some of the apostles—now much in evidence—of that "abnormal man," Lombroso. Hence we judge that this scheme is worthy of note.

[1] Inebriety or Narcomania; its Etiology, Pathology, Treatment, and Jurisprudence. Third edition. New York: J. Selwin Tait & Sons.

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Let us insist here, however, that we do not intend to disparage a fair interpretation of the doctrine of heredity; or of the science that finds in vicious propensities, as displayed in some individuals, the signs of a psycho-neurosis. The inherited tendency to alcoholism is an undoubted fact in many inebriates, and furnishes one of the most important though obscure problems of this grave question. This tendency has a somatic basis, and science may claim as her legitimate function the investigation and establishment of the marks of this species of obliquity. We merely hesitate, at this stage of our knowledge, to erect upon a mere tendency or appetence, however closely allied that may be to the morbid impulses of degeneracy, a distinct morbid entity and label it as a disease.

These difficulties have surrounded Dr. Kerr in his attempts to describe and to define "inebriety." He naturally finds the closest parallels of inebriety in insanity, and points out the resemblances of the various effects of alcohol, as acute intoxication, delirium tremens, *mania a potu*, and the persecutory delusions of the chronic drunkard, to the various symptoms of insanity. These resemblances, however, do not prove an identity. These more or less evanescent effects of alcohol are surely not the symptoms of a constitutional malady, else every man who experiences them must be, in Dr. Kerr's sense, a constitutional "inebriate."

So, too, of the anatomic changes produced by alcohol. If inebriety is the constitutional and hereditary malady described by Dr. Kerr, it has existed *prior* to the establishment of the degeneration of the tissues caused by alcohol. These are only the after-effects of the disease, its sequelæ. The study of the disease as an hereditary neurosis must be pursued along other lines. Cirrhosis of the liver can hardly be regarded as one of the symptoms of "inebriety."

It is but fair to Dr. Kerr to say that he has undertaken an exhaustive study of the etiology of inebriety; and in this respect he has made valuable contributions to our knowledge, and has done much toward establishing this subject upon a scientific foundation. His book is rich in data that go far to enlighten the student upon the subject of the drink-habit.

From the practical standpoint of treatment and jurisprudence Dr. Kerr's book is deserving of all praise. Both as a therapeutist and as a philanthropist his aims and his attainments lift him far above the level where he can be seriously affected by a discussion of mere terms; and although we have concerned ourselves here briefly with such a discussion, which we deem fair and advisable, we are not unmindful of the highly important work of one whose name is forever honorably associated with an enlightened and scientific attempt to combat the grave curse of drunkenness.

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## *INDIVIDUALISM.*

MEN are a good deal alike, both physiologically and psychologically. We have come to count with confidence upon finding the trunk of the ulnar nerve just under the internal condyle at the elbow in subjects of all ages, races, and sizes, and to rely upon the effect of castor-oil in any alimentary canal of whatever length or capacity—and upon such generalizations of similarity science is based. Ninety-nine men out of every hundred exposed to certain stimuli, either physical or mental, will react in exactly the same manner. This fact enables us to lay down rules of treatment which will be found to apply to the vast majority of our patients. We must, however, remember that the "average man," like the "typical case," does not exist outside of the text-books. In any given case it is always an individual and not a mere unit that we have to deal with.

The naturalist sometimes speaks as if it were a wonder that organisms tend to vary. But to one who studies any given form closely enough the wonder is that beings of such marked individuality succeed in resembling one another so closely. Take the leaves of a forest, for instance. At first glance they appear as one uniform mass of specks of verdure, but on closer view they are found to present striking differences, which divide them into oak-leaves, ash-leaves, etc. Then, on closer study still, the leaves of each maple-tree are found to be different from those of every other member of its species; and finally of a thousand leaves on the same branch of any single tree, absolutely no two are exactly alike in color, shape, and veining. The same is true of the human species. At first glance all its members are extremely similar, especially if they happen to belong to a race or tribe with which we are but little acquainted. Most Caucasians on first acquaintance declare that all Chinamen are exactly alike, and the same statement is often heard from persons of Northern birth in regard to negroes. A very brief residence among

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either race is, of course, sufficient to dissipate any such idea.

We have grown quite accustomed to the fact that even among persons of the same race, age, and social condition, the countenance varies so greatly that no two faces are the same, and not once in five-thousand individuals does even sufficient similarity of features occur as to cause persons to be mistaken for one another. Even among children of the same father and mother it is extremely rare for family-likeness to prevail to such an extent as to cause confusion among intimate friends, although it may often do so among strangers. The marvel really is that we succeed in being so much alike.

One of the most extraordinary proofs of the intenseness and minuteness of our individualization is the arrangement of the cutaneous papillæ upon the pads of the fingers and thumbs. These are usually grouped in curious concentric whorl-like lines, and, almost incredible as it may seem, are never arranged in the same pattern in any two individuals. So widely and persistenly do they differ that Galton has recently proposed to use them as a means of identifying criminals and soldiers, and he has drawn up a scheme of classification of them for that purpose. This has just been investigated by a committee appointed by the British Government, which has made such a favorable report upon it that it will probably be put into actual practice very shortly by the English police-authorities. The principle itself is not new, for a similar method of identification has been in use in China for centuries; but the application and system of classifying are extremely ingenious. By means of it a given finger-point can be identified with its fellow in a collection of several thousands in a few minutes. Instead of the troublesome, unreliable, and cumbrous photographs of the "rogues' gallery," the criminal's portrait is taken by simply smearing the tips of his thumb and finger with lampblack and pressing them upon a sheet of white paper, which can then be classified and filed. No amount of dodging or grimacing will avail to distort *that* "mug," as he expressively terms his countenance or portrait. It is said that the value of the method has been shown in a most dramatic manner by the conviction of a murderer from the print of his bloody fingers on the white wall above his victim.

It would thus appear that we are very literally individual *aux bout des ongles*, as the French say, "to the tips of our fingers." And does not this individualization extend to the alimentary canal, the vascular system, the whole organism, in fact? Some of our throat-cases can be recognized almost as readily by their fauces as by their faces and family-likenesses traced in the same region. No two ears are exactly alike, and, next to the eyes and mouth, the ear furnishes one of the most accurate signs of temperament and tendencies that we possess.

This individuality is not merely anatomic, but functional as well. The numerous cases that have been reported, and some of them seen personally by all of us, of severe toxic symptoms from a whiff of cocain-spray; of acute distress from a tenth of a grain of morphin; of gastric crises, and profuse urticarial eruptions following a single grain of quinin, are living proofs of it. So, also, are the cases in which acute toxic symptoms are invariably produced in certain individuals by the ingestion of the smallest quantities of strawberries, of clams, of veal, of apples, nay, even of eggs and of wheat-flour. Probably one-third of our patients will tell us that they "can't eat" some article or other of ordinary diet on account of the almost poisonous effects produced by it. Literally, "What is one man's meat is another man's poison." The "personal equation" is one of the most important factors in therapeutics, and we must ever bear in mind the old rule to treat the patient, not the disease.

## EDITORIAL COMMENTS.

"*If Christ Came to Chicago?*"—When a well-known journalistic mountebank wrote a book with the foregoing title he little thought how soon his imagined touchstone would be actually applied. According to many faithful believers, Christ, or, at least, his healing power, has already come to Chicago incarnate in the person of one John Alexander Dowie. The World's Fair was his Feast of the Passover, on the occasion of which he came down to the great city, and his method of teaching is by the bill-board, the ten-foot sign, and the illustrated broad-sheet, instead of by the parable and the lilies of the field, but his spirit and results are said to be identical with those of the Nazarene. The blind do hear, the dumb see, and the lepers have their tubercle-bacilli demonstrated unto them. Thousands of witnesses stand ready to testify that they have been healed, by the laying on of Mr. Dowie's hands, of every disease that their imagination could suggest, and some of them of several diseases. For instance, a whole congregation declare upon oath that in the healing, in their presence, of a woman who was partially blind, "with the falling of the scales there also came a visitation *which stripped the body of locomotor ataxia.*" This document can, however, hardly be considered as fully authenticated, as neither the eye-

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scales nor the peelings of locomotor ataxia are appended thereto as evidence, in properly certified envelops.

One believer certifies that he was cured instantly of "rheumatism, hernia, kidney and liver disease, and the tobacco-habit;" another lost at one fell swoop "a number of internal cancers, tumors, etc.;" and yet another, "many diseases, including heart-disease, lung-disease, spinal irritation, iritis, and paralysis." It is really to be doubted whether the shock of having so many removed at once might not prove serious to delicate constitutions. More marvellous yet, three or four enthusiastic converts declare that one of their legs has been lengthened from three to four inches, but unfortunately they fail to state whether they were "pulled" or what means were used to secure the result. One of these had been "marked for the grave by all the doctors," after the well-known habit of the medical profession. Other than this, however, there is not a scrap of evidence of any scientific value as to the genuineness of either the cures or the diseases. One woman quotes Dr. Sanger Brown and "an association of physicians, some sixty in number," as authority for the fact that she had "idiopathic muscular atrophy." But Dr. Brown has no better taste than to come forward and say that she had only a "most serious attack of hysteria"—just as if anyone would take his word against that of a lady, in a matter of this sort.

But this is a faithless and an unfeeling world, and, incredible as it may seem, in spite of hundreds of such pathetic testimonials as the foregoing, Mr. Dowie's neighbors on Edgerton Avenue are bringing suit for his removal as a nuisance. They advance the sordid and heartless claim that the continual procession of the halt, the maimed, and the blind destroys the comfort of their homes and depreciates the value of their real estate. 'Twas ever thus since the days when the devils were driven into the herd of swine; "the people of that country besought Him that He would depart out of their coasts." And if pork instead of real estate had been affected in Chicago, something much more drastic than a mere legal injunction might have been resorted to. It was more than suggested in Mr. Stead's book that Christ might not find Chicago an altogether desirable place of residence, but that Chicago would bring suit to have Him abated as a nuisance; reality has brought a plight beyond the power of even his flatulent imagination.

The moral of this little episode is simply that, with all their credulity, all the laity cannot be "fooled all the time." The charlatan, under whatever mask of sanctity or of science, will be surely discovered sooner or later. There is only one set of laws for this universe, and fraud will surely be detected and punished, either under the moral, the scientific, or the commercial code, and generally under all three.

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***The Revival of the Index Medicus.***—We are informed by Mr. George S. Davis, who has hitherto so generously supported the burden of publishing the *Index Medicus*, that in addition to the forty-eight subscriptions at $25 each, noted in THE NEWS of August 31st, there were received up to September 5th, inclusive, the following twelve:

Albany, N. Y.: Melvin Dewey (New York State Library).

Ann Arbor, Mich.: Medical Department University of Michigan, Victor C. Vaughan, M.D., Dean.

Baltimore, Md.: Dr. Charles O'Donovan.

Buffalo, N. Y.: Dr. F. W. Henkel.

New Orleans, La.: S. W. Deland (Orleans Parish Medical Society).

New York City, N. Y.: Dr. Fred. H. Wiggin.

Paris, France: Dr. Charles E. Sajous.

Philadelphia, Pa.: Dr. John B. Roberts, Dr. E. E. Montgomery.

St. Joseph, Mo.: Charles Wood Fassett (Secretary American Medical Publishers' Association).

San Francisco, Cal.: Dr. D. W. Montgomery (San Francisco Medical Society).

Syracuse, N. Y.: Dr. Henry L. Elsner.

The following additional list of seventeen has been received by Dr. J. S. Billings up to September 6th, inclusive:

Albany, N. Y.: Dr. Samuel B. Ward.

Brattleboro, Vt.: Dr. Henry D. Holden.

Cleveland, Ohio: Cleveland Medical Library, Dr. Dudley P. Allen, Dr. Henry K. Cushing.

Edinburgh, Scotland: Mr. Young J. Pentland, Pubr.

Lille, France: Bibliothèque Universitaire.

Paris, France: Dr. Charles Richet.

New York City: New York Academy of Medicine, Dr. George T. Elliot, Dr. Willy Meyer.

Philadelphia, Pa.: Dr. W. W. Keen, Dr. J. William White, Library Pennsylvania Hospital, Dr. William B. Van Lennep, Carl V. Vischer.

St. Paul, Minn.: Dr. C. A. Wheaton.

Now that medical men are returning from their summer holiday, that the medical colleges are reopening, and that the medical societies are resuming their meetings, the necessary list of 200 subscribers to insure a resumption of publication should soon be completed. Failure in this direction would be discreditable to say the least. Subscriptions should be sent without delay to Dr. John S. Billings or Dr. Robert Fletcher, at the Library of the Surgeon-General's Office, U. S. A., Washington, D. C., or to Mr. George S. Davis, Detroit, Mich.

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***Medical Competition and Pictures.***—Every person has been amused, as well as disgusted, by the rage for illustrations that has seized upon the community. The old-time advertisements of the powers of the actor or the virtues of some nostrum are now replaced by portraits and illustrations infinite in number and variety and execrableness. The "regular" profession is imitating the quacks in this respect, and catalogues, prospectuses, and reports of sanitaria and hospitals may contain more pages of pictures than they do of text, and what little text there is is largely taken up with lists of the apples, clothing, potatoes, etc., contributed, the forms of bequests, the appeals to endow free beds, the records of gifts and expenditures, and all that and all the rest. We have before us the report of a large hospital for the insane, which in about forty pages has twenty-three illustrations of the buildings, grounds, parlors, bed-rooms, corridors, painting-rooms, dining-rooms, gymnasia, and what not more. Evidently, wealth, luxuries, flowers, and elegance galore are here the reward of insanity, and certainly no other institution can compare with this! Charity, civilization, and science here clasp hands in a bond of union. But we cannot help wondering by what right money given for the cure and care of the insane and the

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sick is expended in photographing, engraving, and printing expensive illustrations like these. Making a business out of charity, money-making by begging, is evidently a growing and significant habit, not only of the tramp but also of the physician. We have public laws against begging—but it is plain that there are beggars and beggars.

*The Names of Journals.*—We wish mildly to protest against the growing custom of dubbing a journal by some other name than that it has given itself. It is one of the privileges of freedom that a man may be allowed to have the name he chooses, or that was chosen for him by his parents. It is a bit of unnecessary work to write and print supernumerary words as the title of a journal. If one wishes to learn where a journal is printed or where its editors and publishers live, these objects should be easy of fulfilment, but in mere quotation why say *The London Lancet, The New York Medical Record*, etc.? The names of these journals are not those given. Titles are long enough at best. At the present rate of progress we shall soon have to say *The Chicago Journal of the American Medical Association* and *The London British Medical Journal*, and eventually the street addresses may have to be added to the title. We are simply tired of seeing quotations from a worthy journal given as from *The Philadelphia Medical News*, when, of course, there is but one *Medical News* in the world.

*The Vitapath and the Law.*—It is pleasant to chronicle the fact of lay indignation at the enormity of quackery. It seems that in Cincinnati a man died without medical attention other than that of a "vitapath," who was arrested and fined for practising without a licence. The *Cincinnati Medical Journal* says:

In imposing sentence Judge Dustin denounced the Campbells. He said: "Men who knowingly go into a sick-room and prevent anything being done for a dying man by silly incantations and laying on of hands, are responsible for his death, and ought to be on a par with a murderer in the eyes of the law. God help the dying man who relies upon you or any of the so-called graduates of his quackery. You speak of vitapathy being of a higher power than medicine, and you say you ordain ministers at the same time you matriculate vitapathic physicians. Your methods are an insult to intelligence, their practice is a criminal abuse of ignorance, and your college a disgrace to civilization."

## REVIEWS.

THE SCIENCE AND ART OF OBSTETRICS. By THEOPHILUS PARVIN, M.D., LL.D., Professor of Obstetrics and Diseases of Women and Children in Jefferson Medical College, Philadelphia. New (3d) edition. Octavo, pages 677. Cloth, $4.25; leather, $5.25. Philadelphia: Lea Brothers & Co., 1895.

THIS, the third edition of Parvin's *Obstetrics*, will be appreciated by the student and practitioner, as well as by the specialist, on account of its concise and comprehensive treatment of the subject as it stands to-day. The most notable feature of the present edition is the arrangement, the author dividing his subject into two parts, the first including the physiology, from the beginning of pregnancy to the end of the puerperal state, and the second the pathology, treated according to the different periods. The therapy of the second part includes the important surgical procedures that have increased in prominence since the appearance of the earlier editions of the work. The arrangement noted is equally convenient with that usually adopted, and is, at the same time, more comprehensive and scientific. Specifically we would call attention to the description of Pinard's method of dislodging the foot in what the author calls the femoral variety of pelvic presentation; and to that of the mechanism of rotation in occipito-posterior positions of the head, in which the back of the child must be included among the determining factors in anterior rotation; also to the added series of illustrations, especially those included in the chapter on ectopic pregnancy, which, in itself, is a comprehensive *résumé* of the subject.

The absence of a more complete treatment of the bacteriology of puerperal septicemia is, perhaps, to be accounted for by the importance this branch of the subject has assumed as a special study rather than by a want of appreciation of its value in this connection.

One of the most valuable features of the present edition is the complete list of references appearing with the subject-matter in the body of the book. The author's bibliographic knowledge and his extensive obstetric experience and literary ability have been brought to bear in maintaining his work in the front rank among the most practical and scientific medical books of the day.

The care with which the cuts and plates have been executed and the general style of the work call for a word of appreciation for the efforts of the publishers.

LE PHÉNOL SULFORICINÉ DANS LA TUBERCULOSE LARYNGÉE. Par ALBERT RUAULT.

PHENOL SULFORICINATE IN TUBERCULOSIS OF THE LARYNX. By ALBERT RUAULT, M.D. Paris: G. Masson, 1895.

PHENOL SULFORICINATE is a liquid composed of phenol dissolved in sodium sulforicinate by means of a water-bath at a moderate heat. According to the number of parts in 100 of phenol (sodium sulforicinate forming the balance) the solution is designated as 20, 30, or 40 per cent. That which is found to be of the greatest service as a topical application in tuberculosis of the larynx is the 30 per cent. solution. The 40 per cent. solution should be used only in exceptional cases, when the larynx is very tolerant, and presents deep fissures or crateriform ulcerations. The application is made by means of a cotton-wad under laryngoscopic guidance, and the contact with the lesion must be exact. In order to obtain quick tolerance on the part of the larynx it is well to precede the application of phenol sulforicinate by that of an aqueous solution of cocain. After a few applications the cocain may be omitted. There is said to be little nervous reaction. In a few cases slight spasm of the glottis may occur. Excellent results are reported in a large number of cases seen since 1889. Any recommendation made by one of sufficient experience and authority for the amelioration of an affection so painful and resistant as tuberculosis of the larynx deserves careful consideration; and from the evidence brought forward in this brochure we believe that Dr. Ruault has made a decided contribution to therapeutics. The tone of his writing is that of a careful and modest observer.

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It is, therefore, deserving of attention, and his method should be put to extended trial by those having the opportunity to do so.

## CORRESPONDENCE.

### WHAT NEXT?

*To the Editor of* THE MEDICAL NEWS,

SIR: A new edition of a non-technical reference-book, *Johnson's Cyclopedia*, is at present being published, accompanied by much newspaper eulogy and a vast amount of advertising. It is notorious, of course, that the general public knows very little of technical questions, and general cyclopedias are intended for its enlightenment.

Turning to the word "Eclecticism" (vol. ii, p. 905), we find that "Dr. Robert S. Newton, of New York (1818–1881), first inculcated the doctrine of cellular pathology in 1845, and also introduced the antiseptic treatment in surgery in 1846. . . ."

Being under the foolish delusion that Virchow was the originator of cellular pathology, I looked up the eminent German scientist's name in the old edition (vol. iv, part 2, p. 1167), the letter "V" not being ready in the new issue. To my surprise I found these words: "He is the creator of the cellular theory in pathology" (1858).

Under "Lister" (new edition, vol. v, p. 295), the statement appears that Sir Joseph Lister is the founder of antiseptic surgery.

As I had never had the advantage of hearing of the existence of so eminent an investigator as Dr. Robert S. Newton, referred to by the writer of the article upon eclecticism, I looked for his name among the other illustrious Newtons, but found that, celebrated as he must have been, the editor of *Johnson's Cyclopedia* had omitted to insert his biography!

In the article upon "homeopathy" the assertion appears that "in Europe homeopathic physicians are not known as such. Many 'regular' physicians practise homeopathy."

The legal lore contained in this new reference-book, however, entirely eclipses the words of wisdom that appear under "homeopathy" and "eclecticism." The article upon "executor" informs the reader that "by the law of England an infant can act as executor after the age of seventeen." As this has not been the law of England for ninety-seven years (see 38 George III, Chapter 87, Section 6), one would suppose that the proprietors of the cyclopedia had had an opportunity of discovering that the common law had been altered.

Dr. Pepper, of Philadelphia, is the nominal editor of the medical department of the new Johnson; but nobody outside a lunatic asylum would suppose that the articles upon "eclecticism" and "homeopathy" appeared with his knowledge or consent. What editors are for, if not to edit, is a mystery that the Johnson Company might condescend to explain.

It is asserted that the well-known firm of Appleton is the real owner of the new cyclopedia, and one is, therefore, tempted to ask how it comes that so reputable a publishing-house permits a reference-work for the benefit of the general public to contain statements that have no foundation in fact. Respectfully,

LAWRENCE IRWELL.

76 W. TUPPER STREET, BUFFALO, N. Y.

## NEWS ITEMS.

*"Fake" Hospitals.*—To control the establishment of so-called "fake" hospitals the following ordinance has been presented to the Councils of Chicago:

SECTION 1. That it shall be unlawful for any person, firm, association, or corporation other than the regularly constituted authorities of the State of Illinois, or the county of Cook, or the city of Chicago, to open, conduct, manage, or maintain any hospital as hereinafter defined, within the corporate limits of the city of Chicago, without first obtaining a permit therefor, to be issued by the Commissioner of Health of the city of Chicago upon the written application of such person, firm, association, or corporation, which application shall state the location or proposed location of such hospital, the purposes for which it is to be opened, conducted, or maintained, the accommodations or proposed accommodations for the inmates thereof, the nature and kind of treatment given or proposed to be given therein, and the name and address of the chief surgeon, physician, or intended chief physician or surgeon attendant thereat.

SEC. 2. It shall be the duty of the said Commissioner of Health, upon the presentation of such application, to make or cause to be made strict inquiry into the facts set out in such application, and if, upon such inquiry, he shall find that such hospital is or is intended to be constructed so as to afford proper accommodation for the care of the persons received or proposed to be received therein, and that the chief physician or surgeon, or intended chief physician or surgeon attendant thereat, gives or is under agreement to thereafter give such attendance thereat as does or will render him responsible professionally for the medical or surgical treatment given or to be given to any and all persons thereat, and that such chief physician or surgeon is regularly authorized to act as such under the laws of the State of Illinois, and upon the payment to said Commissioner of Health of a licence, permit, inspection, or examination fee of — dollars, he shall issue a permit in the name of the city of Chicago to such applicant to open, conduct, manage, or maintain a hospital at the place and in the manner and for the purpose in such application mentioned, which said permit shall cease and be operative the 31st day of December next following the issue thereof.

SEC. 3. It shall be the duty of such person, firm, association, or corporation, permitted as aforesaid to open, conduct, or maintain a hospital within the corporate limits of the city of Chicago, to make a report to the said Commissioner of Health on or before the fifth day of each calendar month, showing a complete record of such hospital during the preceding month, including the number of inmates received, discharged, and died during the month, causes of death, and such other information as may be necessary to an intelligent sanitary supervision of the establishment; such record to be furnished on blanks prepared and supplied by the Commissioner of Health, verified by the affidavits or affirmation of the chief physician or surgeon or superintendent attendant thereat.

SEC. 4. Every hospital permitted as aforesaid shall at all times be open to the inspection of the said Commissioner of Health or his duly appointed assistants or inspectors.

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SEC. 5. The Commissioner of Health of the city of Chicago is hereby authorized and empowered to inspect, or cause inspection to be made, whenever and as often as he may deem proper, of any hospital permitted as aforesaid within the corporate limits of the city of Chicago, and if, upon any such inspection, he shall find the same to be conducted, managed, or maintained in violation of the terms of the application for the permit under which the same was opened, conducted, managed, or maintained, or in violation of any of the health or sanitary ordinances, rules, or regulations of said city of Chicago, then and in that event he is hereby authorized and empowered to revoke any such licence issued for the opening, conduct, management, or maintenance of the same.

SEC. 6. Any person or persons, or corporation other than the regularly constituted authorities of the State of Illinois, county of Cook, or city of Chicago, opening, conducting, managing, or maintaining a hospital as hereinafter defined within the corporate limits of the city of Chicago without first having obtained a permit therefor as provided in Section 2 of this ordinance, or after a revocation of such permit under the authority conferred in Section 5 of this ordinance, or in violation of any of the provisions of this ordinance, shall be and is hereby declared to be guilty of maintaining a nuisance, and upon conviction thereof shall be fined in a sum not less than — dollars nor more than — dollars.

SEC. 7. For the purposes of this ordinance a hospital is hereby defined to mean any place or establishment used for the reception or care of the sick, injured, or dependent, including women awaiting confinement, or used for the medical or surgical treatment of mental or physical disease or injury.

SEC. 8. This ordinance shall take effect and be in force from and after its passage and due publication.

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***Bellevue Hospital.***—The Commissioners of Public Charities and Correction of New York have lately asked the members of the Fourth Division of Bellevue Hospital to form an organization for the purpose of giving instruction to graduates and third-year students. The medical staff of the Fourth Division consists of Doctors C. L. Dana, George B. Fowler, and Alexander Lambert. The surgical staff consists of Doctors J. W. S. Gouley, Charles Phelps, and W. F. Fluhrer. The gynecologist is Dr. W. Gill Wylie.

The following communication from the Commissioners, and the answer thereto, are given for the information of the profession:

*Department of Public Charities and Correction.*
*Commissioners' Office,*

NEW YORK, September 3, 1895.

GENTLEMEN: I am directed to transmit the following proceedings of the Board at a meeting held this day:

*Resolved*, That the seven members of the Fourth Division of Bellevue Hospital be requested to form, without delay, an organization for practical instruction to graduates in medicine and third-year students in the hospital and the bureau of medical and surgical relief for outdoor poor.

*Resolved*, That the members of the Fourth Division shall be empowered to draw from the institutions subject to the division all necessary clinical material.

*Resolved*, That the Commissioners will heartily cooperate with the Fourth Division in carrying out the scheme of instruction.

*Resolved*, That certificates issued to those who shall have attended instruction, and signed by the seven members of the Fourth Division, shall be countersigned by the Commissioners, and shall bear the seal of Bellevue Hospital.

By order, G. F. BRITTON,
Secretary.

NEW YORK, September 6, 1895.

*To the Commissioners of Public Charities and Correction.*

GENTLEMEN: At a meeting of the Fourth Division of Bellevue Hospital, held on the fourth day of September, your communication was presented and read. The members of the division desire to express their high appreciation of the step you have taken, in the interests of the hospital and of the people at large, in thus adding to the usefulness of the vast amount of clinical material in Bellevue. They have, therefore, resolved to accept your invitation to become a teaching-corps, have formed the organization which you requested, and have further resolved to begin, on or about the 1st of October, the courses of instruction instituted by your honorable Board. Each course of instruction shall continue six weeks, and not less than five courses shall be given annually.

Very respectfully,
W. F. FLUHRER, M.D.,
Secretary.

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***The American Public Health Association*** will hold its twenty-third annual meeting at Denver, Col., October 1st, 2d, 3d, and 4th. The following topics have been selected for consideration:

The Pollution of Water-supplies; The Disposal of Garbage and Refuse; Animal Diseases and Animal Food; The Nomenclature of Diseases and Forms of Statistics; Protective Inoculations in Infectious Diseases; National Health-legislation; The Cause and Prevention of Diphtheria; Causes and Prevention of Infant-mortality; The Restriction and Prevention of Tuberculosis; Car-sanitation; The Prevention of the Spread of Yellow Fever; Steamship and Steamboat Sanitation; Transportation of the Dead; The Disposal of the Dead; The Abuse of Alcoholic Drinks from a Sanitary Standpoint.

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***The New Mexico Territorial Board of Health*** is to be commended for the publication for general distribution of circulars giving information as to the manner in which pulmonary tuberculosis is most commonly disseminated, together with directions as to the best means of preventing such dissemination.

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***Prof. Schede***, of Hamburg, has been elected to the Chair of Surgery in the University of Bonn in succession to Prof. Trendelenburg.

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***Dr. John S. Bristowe***, a distinguished English clinician, died on August 20th at the age of sixty-eight years.

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***Meetings of State, National, and International Medical Socities.***

| | Meets. | Next meeting. |
|---|---|---|
| American Association of Obstetricians and Gynecologists. | Sept. 20, 1895 | Chicago, Ill. |
| American Dermatological Association. | Sept. 17, 1895 | Montreal, Can. |
| American Gynecological Society. | May 27, 1896 | New York City |
| American Medical Association. | May 5-8, 1896 | Atlanta, Ga. |
| American Orthopedic Association. | Sept. 19-21, 1895 | Chicago, Ill. |
| American Public Health Association. | Oct. 1-4 | Denver, Col. |
| Association of American Anatomists | Dec. 18, 1895 | Philadelphia. |
| Florida State Medical Society. | April 1, 1896 | Sanford. |
| Illinois State Medical Society. | May 19, 1896 | Ottawa, Ill. |
| International Congress of Gynecology & Obstetrics. | September, 1896 | Geneva, Switzerland. |
| International Congress of Otology. | Sept. 23-26, 1895 | Florence, Italy. |
| International Medical Congress. | August, 1896 | Moscow, Russia. |
| Maine Medical Association. | June 4, 1896 | Portland, Me. |
| Medical Association of Georgia. | April 15, 1896 | Augusta, Ga. |
| Medical Association of the State of Alabama. | April, 1896 | Montgomery, Ala. |
| Medical Society of the State of New York. | Jan. 28, 1896 | Albany, N. Y. |
| Medical Society of the State of Pennsylvania. | May, 1896 | Harrisburg. |
| Medical Society of the State of Tennessee. | April 9, 1896 | Chattanooga. |
| New York State Medical Association. | October 15-17 | New York City |
| Ohio State Medical Society | May 27-29, 1896 | Columbus, O. |
| Oklahoma Medical Society. | Nov. 14, 1895 | Oklahoma City |
| Texas State Medical Society. | April, 1896 | Ft. Worth, Texas. |
| Tri-State Medical Society of Illinois, Iowa, and Missouri. | Oct. 1-4, 1895 | Des Moines, Iowa. |
| Utah State Medical Society. | Oct. 1, 2, 1895 | Salt Lake City. |
| Vermont State Medical Society. | October 10, 11 | Burlington, Vt. |

## BOOKS AND PAMPHLETS RECEIVED.

Our Insane Patients and their Hospital Relations. By Charles A. Ring, M.D. Reprinted from the Buffalo Medical and Surgical Journal, 1895.

Report of the Medical Missionary Society in China, for the Year 1894. Hong-Kong: Printed at the "China Mail" Office, 1895.

Etiology and Prophylaxis of Pulmonary Tuberculosis. By Henry Landis, M.D. Reprinted from the Lehigh Valley Medical Magazine, Vol. VI, No. 5.

Note-book of Materia Medica, Pharmacology, and Therapeutics. By R. E. Scoresby-Jackson, M.D., F.R.S.E. Fifth edition. Revised by J. Rutherford Hill and Ralph Stockman, M.D., F.R.C.P.E. Edinburgh: James Thin. London: Simpkin, Marshall & Co., 1895.

State of Washington, Third Annual Report of the Board of Health, for the Year Ending September 30, 1894. Olympia, Wash.: O. C. White, State Printer, 1895.

Remarks on the Treatment of Inevitable Abortion. By Charles P. Noble, M.D. Reprinted from the Codex Medicus Philadelphiæ, 1894.

The Annual Report of the Health of the Imperial Navy. For the Twenty-sixth Year of Meiji (1893). Tokyo.

The Diagnosis of Pregnancy during the First Three Months. By Charles P. Noble, M.D. Reprinted from the Transactions of the Philadelphia County Medical Society, 1894.

Celiotomy for Puerperal Septicemia and Peritonitis. By Chas. P. Noble, M.D Reprinted from the American Gynecological and Obstetrical Journal, 1895.

Circular No. 4. Sanitary Climatology. Information Relative to the Investigation of the Influence of Climate on Health. U. S. Department of Agriculture, Weather Bureau. Washington, D. C., March 23, 1895.

Diseases of the Nervous System. By W. R. Gowers, Reprinted from the Medical Magazine, 1895.

A Universal Language for Medical Men. By J. Keser, M.D., F.R.C.S. Reprinted from the Medical Magazine, 1895.

Some Impressions of Gynecology in Europe. By Hunter Robb, M.D. Reprinted from the Western Reserve Medical Journal, 1895.

Syphilis in the Innocent. By A. H. Cleveland, M.D. Reprinted from the University Medical Magazine, 1895.

Methods of Chest-examination, Supplementary to Auscultation and Percussion. By Edward O. Otis, M.D. Reprinted from the Boston Medical and Surgical Journal, 1895.

Annual Reports of the Managers and Officers of the State Hospitals of New Jersey, for the Year Ending October 1, 1894. Trenton, N. J.: Printed by the John L. Murphy Publishing Co., 1894.

Department of the Interior Census Office. Vital Statistics of Boston and Philadelphia Covering a Period of Six Years, Ending May 31, 1890. John S. Billings, M.D. Washington, D. C. Government Printing Office, 1895.

Indigestion. An Introduction to the Study of the Diseases of the Stomach. By George Herschell, M.D. Lond. Second edition. New York: G. P. Putnam's Sons. London: Baillière, Tindall & Cox, 1895.

Der Weg des Luftstromes durch die Nase. Auf Grund experimenteller und anatomischer Untersuchungen. Von Dr. Gottfried Scheff. Beilage zur Wiener klinischen Rundschau, 1895, Nr. 18.

Klinische Vorlesungen Uber Syphilis. Von Dr. E. von Düring. Hamburg und Leipzig: Verlag von Leopold Voss, 1895.

The Johns Hopkins Medical School. Annual Announcement, 1895-96. Baltimore: The Johns Hopkins Press, 1895.

Double Hemiplegia with Double Hemianopsia and Loss of Geographical Center. By Thomas D. Dunn, M.D. Reprinted from the University Medical Magazine, 1895.

The Relations of Infectious Processes to Mental Disease. By Charles K. Mills, M.D. Reprinted from the Transactions of the Congress of American Physicians and Surgeons, 1894.

Serum-therapy in Pulmonary Tuberculosis, with an Explanation of Secondary Symptoms following the Administration of Antitoxin. By Charles Wilson Ingraham, M.D. Reprinted from the Journal of the American Medical Association, 1895.

Hypnotism. By Chalmer Prentice, M.D. Reprinted from the Medical Record, 1895.

Perichondritis of the Laryngeal Cartilages. By C. P. Ambler, M.D. Reprinted from the New York Medical Journal, 1895.

Scopolamin Hydrobromate in Increased Intra-ocular Tension. By F. G. Ritchie, M.D. Reprinted from the Journal of Ophthalmology, Otology, and Laryngology.

Weekly Abstract of Sanitary Reports Issued by the Supervising Surgeon General M. H. S. Under the National Quarantine Act of April 29, 1878, and the Act Granting Additional Quarantine Powers and Imposing Additional Duties upon the Marine Hospital Service. Approved February 15, 1893. Vol. ix, Nos. 1 to 52. Washington: Government Printing Office, 1895.

The Diseases and Deformities of the Fetus: An Attempt Toward a System of Ante-natal Pathology. By J. W. Ballantyne, M.D., F.R.C.P.E., F.R.S.E. With plates. Vol. II. Congenital Diseases of the Subcutaneous Tissue and Skin. Edinburgh: Oliver & Boyd, Tweeddale Court. London: Simpkin, Marshall, Hamilton, Kent & Co., Limited, 1895.

Double Athetosis. Report of Two Cases. By William F. Drewry, M.D. Reprinted from the Virginia Medical Monthly, 1895.

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THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXVII. SATURDAY, SEPTEMBER 21, 1895. NO. 12.

## ORIGINAL ARTICLES.

### OTITIS MEDIA AS A COMPLICATION OF PNEUMONIA.[1]

BY F. P. BALL, M D.,
OF LOCK HAVEN, PA.

IT is the intention in this paper to call attention to otitis media as it occurs complicating pneumonia in children, and especially that form of pneumonia most common in childhood, broncho-pneumonia or catarrhal pneumonia. In fact, the three cases reported were all cases of otitis media complicating catarrhal pneumonia, and the very marked and decided cerebral symptoms, as will be seen, were entirely due to this complication.

Of course, otitis media often occurs as a complication of other diseases, and, in fact, quite recently I have seen it stated, of many other diseases, even including intestinal diseases. Indeed, it is not yet fully appreciated—or at least our knowledge does not yet go far enough to say—how many cases of what appears to be meningeal inflammation occurring in the course of other diseases is due to disturbance within the tympanic cavity. It is not fully appreciated because we have not been accustomed to search for and understand the effect of tympanic pressure upon the cerebral circulation. We have always understood and in some measure expected a complication of this character in a certain number of cases of the exanthematous diseases, as scarlatina, measles, etc., and have accounted for the cerebral disturbance in such cases by saying that there has been an extension of inflammation from the throat through the Eustachian tube and tympanic cavity to the meninges of the brain. While undoubtedly meningitis may and does thus arise, I think, in fact, many of the cases in which serious inflammation seems by all the symptoms we can appreciate to exist, the truth is that they are due to pressure within the tympanum, as in the cases hereinafter recorded.

While, then, we expect sometimes to meet with otitis media as a complication of diphtheria, scarlet fever, measles, etc., I think few have been accustomed to look upon pneumonia as one of the diseases likely to be attended with this complication. It is a complication quite frequently overlooked because the symptoms are referred to the brain instead of the tympanum, and the importance of it, too, is quite as often not appreciated. It is a complication recognized by various writers, it is true, and is a well-understood pathologic condition; but the references to it are so meager, and until recently the importance of the subject has failed of recognition except from the aural surgeons, who seldom see such cases as we are about to discuss, that it has not received the attention at the hands of the general practitioner that it should. That it occurs frequently, and that the symptoms induced by it are referred to some other cause, I am quite confident, and, in fact, as the cases here referred to will show, the symptoms of this complication are sometimes so misleading that unless we are very much on our guard it is an easy matter to suppose them to be due to some other pathologic condition.

The significance of otitis media has not only relation to the usefulness of a very important organ, the ear, but it has very profound bearing upon the life of the individual as well. Many a life has been jeopardized, and no doubt many a one also has been lost through a want of thorough appreciation of the importance of otitis media or a failure to discover its existence, or an inability to manage it properly when discovered. The effusion in the tympanum may, by pressure, so seriously interfere with the cerebral circulation as to cause death, or the pus there confined may burrow through the mastoid sinuses, producing mastoid disease, with all its serious consequences, or through the interstices in the thin lamella of bone lining the cavity, thus producing a true purulent meningitis. The danger to life being escaped, the danger to hearing still remains, and later-coming deafness is quite frequently traceable thereto. It is a question worth considering how many unfortunates might have been spared this calamity by early recognition and proper treatment of this complication of the various diseases that are its primary causes.

That otitis media may follow or complicate pneumonia, especially in children, as well as the exanthematous diseases, in which it is such a familiar accompaniment, it is the object of this paper to show. It is not at all the intention to consider this subject from the point of view of the aural surgeon, but to review the question of middle-ear disease as it should be recognized and treated by the general practitioner.

[1] Read before the West Branch Medical Association at Williamsport, Pa., January 29, 1895.

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The following extract from the *Hospitals Tidende*, 1893, Nos. 18 and 20, reproduced in the *Therapeutic Gazette* of May 15, 1894, first called my attention to this matter and served to illuminate a case I then had under observation, and which had completely deceived myself and two consultants, our diagnosis being meningitis complicating pneumonia, whereas the lesion producing the cerebral disturbance proved subsequently to have been otitis media. Since then I have had two other cases, all of which shall be presently reported:

"A valuable communication is made by Rasch, of Copenhagen, of the results of sixty-one autopsies of children under two years of age. In but five cases was the tympanum normal, suppurative disease being present on one or both sides in forty-six, equalling seventy-five per cent., and catarrhal lesions in eight cases, or fourteen per cent. Nearly all of the children who had died of broncho-pneumonia showed otitis, and in thirty-three of the forty-three in which the secretion was rigidly examined the pneumococcus was present. Not a few of these children had shown symptoms leading to a diagnosis of meningitis, which was found absent on section, and the tympanic inflammation had been generally overlooked. Perforation of the drum-head was found but four times, and even when this occurs the condition is too frequently unrecognized or slighted.

"This is only a confirmation of what has been long urged and repeatedly demonstrated by otologists, but they too often are merely regarded as magnifying their office unreasonably. Numbers of such cases recover from the general disorder without recognition of the middle-ear disease, and give no evidence for a time that resolution has not been complete there; but the otologist finds a really normal drum-head a rarity, and must frequently trace later-coming deafness to such beginnings. This is the more deplorable when measures as simple as hot douching of the ear will often suffice to cure the disease in its early controllable stage; and a careful use of the Politzer inflation has at times instantly dispelled the symptoms of meningeal involvement, which delay might have made organic and irremediable."

The following cases, which came under my observation in the spring or early summer of the past year, illustrate the points brought out in the foregoing extract quite forcibly, and especially show how easy it is to mistake these cases for cases of meningitis, and also show, what is especially referred to in the extract, the close relation between the primary disease, pneumonia, and the complication otitis media:

CASE I.—A son of F. C. L., aged six years, had an attack of measles of mild character three weeks before the present illness and had apparently fully recovered. Just previously to this illness he had been exposed somewhat to cold and damp and had become overheated while preparing for some school-exercises at the end of the term. The first intimation that the parents had that the child was not well was that he seemed to have "taken a bad cold," and when I saw him on the second day of his illness he was suffering from bronchitis, though his most distressing symptoms were abdominal; indeed, there seemed to be a general catarrhal condition of the mucous membranes. There was considerable pain in the stomach and bowels, very decided tympanites, diarrhea, and occasional vomiting. The tongue was moist and covered with a white fur. The temperature was but slightly elevated and the pulse only 100. There were cough and some expectoration of tenacious, stringy mucus and subcrepitant râles, but no pain in the chest, and the percussion-note was clear over all parts of both lungs.

On the third day the abdominal symptoms were very decidedly ameliorated; the pain in the stomach and bowels ceased; the tympanites subsided; and the diarrhea stopped altogether, though there was still occasional vomiting. The temperature now rose to 102°, the cough became more distressing, and pain in the chest was complained of. Percussion detected a small area of dulness in the middle lobe of the right lung. On the fourth day the boy became quite restless, dull, and stupid, sleeping most of the time, throwing his hands about, and crying out as though in pain; he now complained of headache and rolled his head in the pillow, and, though in semi-coma most of the time, could be aroused by considerable effort, and would answer questions in monosyllables. Hearing was noticed to be quite dull in both ears, but much more markedly so in the left. When aroused, vision did not seem to be lost entirely, though it was evidently an effort for the child to concentrate his vision on any object. The pupils responded slowly to light and were sometimes dilated and again contracted, though never unequally contracted or dilated. The stupor became more and more pronounced as did also the deafness, so that it was hard to rouse the patient at all. His pulse became very rapid and feeble, though it was very difficult, indeed, to take it satisfactorily on account of his extreme restlessness; he was never quiet a minute, though apparently unconscious of his surroundings. The temperature, when it could be taken, remained at 101° or 102°, though I think if it could have been more accurately taken it would have shown a higher range.

At the end of a week sensation was so blunted that the cornea could be touched without any notice of it by the patient. During the time these cerebral symptoms were developing the chest-symptoms were subsiding. The pneumonia, which had extended to the greater part of the lobe affected, had commenced to clear, but on account of the head-symptoms the prognosis was exceedingly unfavorable. The boy was at this time seen in consultation by Drs. Armstrong and Lichtenthaler, and the diagnosis previously made of meningitis complicating broncho-pneumonia was confirmed, without a question of doubt arising in the minds of either consultant or myself. At this period of the disease I found it necessary to be absent from home for a few days and Dr. Lichtenthaler continued in care of the case for me, with a most serious prognosis from all who had seen the patient. Dr. Lichtenthaler saw him tne next day and gives me the following history of the case during the time the child was under his observation. He saw the case

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again on the following evening, but could detect no signs of improvement. On the next morning he found the boy decidedly comatose, lying flat on his back, with limbs outstretched, all delirium and irritability gone; the stupor was so profound that he could place his finger on the cornea over the pupil without eliciting any sign of consciousness whatever; urine was voided unconsciously in the bed; the temperature and pulse were about the same as they had been during the preceding days. He called to see the patient again in the evening, fully expecting to find him dead, but on entering the house he found everything changed. The patient, having almost entirely recovered from his condition of coma, would reply "yes" and "no" in answer to questions, and the doctor was informed by the mother of the child that "one ear had broken during the afternoon," and that in a short time the family had noticed the change for the better. The child had asked for milk, had also expressed a desire to urinate, and did so after being placed on the chamber; and had asked for bread and butter. The doctor removed considerable pus from the ear, and was informed that there had been quite a free discharge. From this time on there was continuous and certain progress toward recovery, with gradual decline in temperature and pulse-rate and restoration to consciousness, so that when I resumed charge of the case the temperature was normal, the mind clear, the memory good, and the deafness about gone.

CASE II.—A son of W. H. S., aged five years, had also had an attack of measles some two weeks previous to the present illness. When first taken sick his symptoms were those of a general catarrhal fever. The temperature the first two days ranged from 101° to 102°. The child had severe headache, vomiting, and diarrhea, more or less stupor, extreme restlessness, and some delirium. There was quite a troublesome cough also, which percussion and auscultation revealed to be bronchitic. On the second day the vomiting and diarrhea ceased, but the temperature rose in the evening to 103°, and quite perceptible deafness was manifest, which was, at that time, supposed to be due to quinin, which the patient had been taking. On the next morning (third day) the temperature rose to 104°, and percussion detected dulness over a small area of the right lung. The child slept most of the time and the deafness was extreme. He was restless and delirious for several days more, when the lung cleared up, the temperature fell, and deafness disappeared and he returned to full consciousness. There was no discharge from the ears in this case. A diagnosis was made quite early in the disease of the middle-ear disease complicating pneumonia, and this, in the light of subsequent events, I believe to have been correct.

CASE III occurred in a son of Charles S., aged six years. This case is but a repetition of the other two, and I do not think it will be necessary therefore to go into details in regard to it, as was done in the first case, in order to bring out the points to be considered. There is one difference, however, between Case I and Case III on the one hand and Case II on the other, viz.: In Case II there was no discharge from the ears, whereas in the other two there was, and in both of the former cases there was a rapid subsidence of the symptoms, with the appearance of the discharge, showing very plainly the relation of the brain-symptoms to the pus contained in the tympanum. In both cases the discharge was purulent, and I am very sorry a microscopic examination was not made to determine the presence or absence of pneumococci. In this case, as in the others, there had been an attack of measles, which had been apparently fully recovered from, and in some two or three weeks was followed by an attack of catarrhal pneumonia. Accompanying the pneumonia were the decided symptoms of brain-disturbance as though due to meningeal inflammation—the restlessness, headache, coma, fever, vomiting, and, in addition, the marked and very decided deafness. The coma in this case was, if possible, deeper than in either of the others, though there was not so much restlessness or delirium as in the first case. The bowels were constipated throughout and vomiting continued at intervals for four or five days. The deafness was so profound that it was almost impossible to make the child hear the loudest shout or to gain any intelligent recognition from him. This, however, was as much due to the deep coma as to the defect of hearing. The pupils responded to light, but sluggishly. The temperature on several occasions became quite high, on more than one occasion reaching 105.5°, and necessitating the administration of an antipyretic. The pulse was rapid throughout the illness. These very pronounced symptoms continued for eight days, at the end of which time there was a discharge from one ear, with a marked and rapid change for the better. By this time the pneumonic lung had cleared up, and after the discharge the temperature fell and the child rapidly convalesced.

A *résumé* of these cases develops several points quite forcibly, and I think they are of sufficient interest and importance to hold our attention for a few moments.

In the first place, we see the indisputable connection of the two conditions, the pneumonia and the otitis media, with its accompanying symptoms, so closely resembling meningeal inflammation that a differential diagnosis becomes an exceedingly difficult matter. Another point for consideration is the fact that while we have all the symptoms of meningeal inflammation, viz., the headache, vomiting, delirium, restlessness, fever, coma, and deafness, there is, in reality, no inflammatory action in the cerebral meninges at all. A member of the profession, whose opinion I value very highly, writes me concerning this point that "nearly everyone is agreed at the present time that in such cases it is simply an illustration of the fact that the infectious disease is influencing the brain as well as the lung;"

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but if that means that the infectious disease, pneumonia, is producing a meningitis as well as a pneumonitis, I think the cases here reported, as well as the autopsies referred to in the extract already quoted, contradict that idea, for it will be remembered, in two of the cases referred to, the symptoms of meningitis subsided immediately on the relief of pressure by the liberation of the pus from the tympanic cavity, and in the other case the same thing, or practically the same thing, occurred probably by discharge through the Eustachian tube. It would seem quite evident, therefore, that in these cases the condition is not due to inflammation of the meninges, but is the result of pressure within the tympanic cavity upon the sinuses and veins, and that it is relieved instantly when the pressure is removed.

When this condition occurs as a complication of pneumonia or the various other diseases with which it is commonly associated, but especially pneumonia, it is quite an easy matter to overlook it, or rather to refer it to an entirely different pathologic condition; for, in the first place, it is a condition that it is acknowledged is not easy of diagnosis, and, secondly, the primary disease is very likely to obscure the lesion. In a recent paper by Dr. S. MacCuen Smith[1] attention is quite forcibly called to the facts just mentioned. This writer says that in the last three years he has seen six children die of middle-ear disease which was unrecognized until a few hours before death. "Four of the patients," he says, "were thought to be suffering from 'brain-fever' and two from 'meningitis,' and when we recall the perfect picture of meningeal inflammation presented by these cases we can readily understand how without the most careful examination of the case such errors in diagnosis occur." Gowers says in his work on *Nervous Diseases* that the pressure on the bloodvessels and sinuses in the tympanic cavity due to inflammatory action in the middle ear gives rise to symptoms that so closely resemble those of meningitis that the one condition is often mistaken for the other, and the diagnosis is almost, if not quite, impossible. Referring to the cases just reported, this difficulty of diagnosis is quite plainly illustrated, and the general appearance of the child, together with many minor details in each case, makes the difficulty still greater at the bedside.

There are some clinical features which assist at least in an approximate diagnosis. The pupils may be sometimes contracted and again dilated, but they are not unequally contracted or dilated. The deafness is likely to precede the coma, whereas the deafness, or rather the insensibility to sounds, in meningitis is in direct proportion to the depth of the stupor. I have never seen in these cases any retraction of the abdominal muscles such as occurs in meningitis, and while the bowels are usually constipated and there is considerable vomiting, still these symptoms are not so pronounced nor so constant as in meningitis. The pain that is complained of is usually referred to the ear or the side of the head, whereas in meningitis the patient simply complains of headache without referring to any special location of the pain. I have never seen the *tache rouge* in these cases, though I must confess I have also often seen it absent in cases of meningitis. An examination of the ear with a head-mirror and speculum is the most important and probably also the only certain method of making a diagnosis, and this assists very materially not only in the diagnosis, but also in the treatment of the case, which, as already said, is a very important matter.

Pathologically considered, the tympanic cavity is well arranged to act as a trap for any micro-organisms that may be in circulation in the respiratory apparatus or that may be forced into it by efforts at coughing, having easy communication with the throat by the Eustachian tube and being closed at its outer extremity by the tympanic membrane.

If we recall the anatomic structure of the cavity, we can readily see how inflammatory action in its interior may quite easily extend to the meninges of the brain or by pressure produce most serious and alarming symptoms. Many authoritative writers have called attention to the fact that most serious consequences result from pressure on the veins and sinuses of the meninges due to infiltration and exudation into the tympanic cavity, and when we remember that the cavity is only separated from the brain by a thin lamella of bone perforated by bloodvessels and frequently containing apertures, and that posteriorly there is a veritable and almost direct communication with the cranial cavity through the mastoid sinuses, it is not surprising that serious brain-disturbance, and even a fatal brain-lesion, should result from middle-ear disease. Indeed, it is surprising that serious results do not more frequently follow.

Inflammation of the middle ear occurs most frequently as a complication or sequel of some other disease, and is the result, as we say, of extension of inflammation, or perhaps, to speak more scientifically, of migration of bacteria from the throat or other outer parts of the respiratory system through the Eustachian tube to the tympanic cavity. This is quite a familiar complication of the exanthematous diseases, and quite recently I have seen several cases of tuberculosis in which the bacteria were probably forced into the middle ear, with consequent suppuration and purulent otorrhea, with loss of hearing—the same result, though due to different

[1] New York Medical Journal, July 21, 1894.

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micro-organisms, that happened in the cases already referred to. It used to be a quite common complication of scarlet fever, and many a child suffered with an offensive discharge from the ear that made him obnoxious to himself and to others and finally lost the hearing of the ear or ears affected, if indeed he did not lose his life, before the discharge occurred, through this complication. I am glad to say that I seldom now see this complication of scarlet fever. Since the elucidation of the bacterial origin of these diseases and the adoption of the only rational method of treating the throat through antisepsis, I seldom see an invasion of the Eustachian tube by pathogenic bacteria. In all such cases it is my habit to pay most careful antiseptic attention to the throat, and I must say that as a consequence the absence of offensive otorrhea or deafness as a sequel has amply repaid for all the necessary trouble, which really amounts to nothing. As it is known that there may be invasion by the pathogenic bacteria of the tympanic cavity in pneumonia, tuberculosis, etc., as well as the exanthematous diseases, it seems to me it would be a wise precaution to use antiseptic throat-washes in these cases also, in order to prevent what might become a serious complication.

The prognosis in such cases as have been here reported and briefly discussed depends a good deal on the plan of treatment or on the success of the efforts of Nature at liberating the exudate confined within the tympanic cavity. If the pus is discharged, either by perforation of the drum or through the Eustachian tube, relief is speedy and recovery quite sure, unless this fortunate circumstance is too long delayed. If the pus is not liberated, death may result from the pressure on the cerebral vessels, or there may be burrowing of the pus, resulting in meningitis and death. Hot douching of the ear, inflations through the Eustachian tube, and at the proper time the liberation of pus by surgical means, are recommended as the proper method of treatment. The anticipation of the efforts of Nature by the surgical liberation of the pus gives much better prospects of recovery and much less danger of permanent loss of hearing.

## *PULMONARY TUBERCULOSIS—ITS EARLY DIAGNOSIS.*[1]

BY EDWARD F. WELLS, M.D.,
OF CHICAGO.

THE great practical importance of this subject must be recognized if only superficial consideration is given to a series of propositions the applicability of which will be conceded by every experienced physician:

[1] Read by title before the Detroit meeting of the Mississippi Valley Medical Association, Sept. 3–6, 1895.

*a.* Pulmonary tuberculosis is an affection that may be recognized in its early stages. The symptoms are clear, suggestive, distinctive; and detection of the signs amounts to a practical demonstration of its existence. If any doubts are present, they are speedily resolved by time and the development of the disease.

*b.* Diagnostic failures are not due to any inherent difficulties. On the contrary, they are usually due to remediable faults upon the part of the physician, as, for example, to a hazy conception of the clinical picture of early tuberculosis of the lungs; to obtaining an incomplete history of the case; to superficial physical examinations or to lack of facility in manipulation or interpretation in this field; and, finally, to a peculiar mental bias, which renders him loath to acknowledge the presence of that which he dislikes to discover.

*c.* The prevalence of pulmonary tuberculosis has diminished and is declining, and it is reasonable to believe that the extension of the malady may be further restricted by early impressing upon every patient the importance of those preventive measures that are everywhere recognized as being efficient.

*d.* Recovery from pulmonary tuberculosis occurs in a very considerable proportion of cases, and medical management plays an important rôle in bringing about this very desirable result. That early treatment is influential in curing the disease and prolonging life will not be controverted by any one familiar with the subject.

*e.* Pulmonary tuberculosis necessarily entails upon its victims months and years of invalidism, with probably radical modifications of personal, business, domestic, and social relations; together with the certainty of death, in the end, in the large majority of cases. Simple justice demands that patients be early apprised of these facts.

The diagnosis is based upon the history and phenomena presented by the individual case compared with the total blended knowledge that the observer has gained from his own experience and the published observations and opinions of others. Inasmuch as the first is an ever-varying and the second an illimitable quantity, it is clear that the limits of this short paper will permit consideration only of a few of the many important points that may be classed as peculiarly diagnostic. In making selections it will be my aim to call particular attention to those that I have oftenest seen neglected.

Without argument it will be taken for granted "that pulmonary tuberculosis is due to the lodgment and subsequent growth in the lungs of the bacillus tuberculosis; that the entrance of this microscopic organism is usually effected through the inspired air, and that the atmosphere becomes contaminated from the dried and pulverized sputa of those consumptives who carelessly expectorate

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upon the ground, floors, articles of clothing, etc. And further, that in countries where the malady is prevalent all persons are, because of the reprehensible custom of careless expectoration alluded to, constantly exposed to the germs of the disease, and that all do not become affected is due to the short life of the bacillus, especially when exposed to sunlight; the lack of a suitable soil for its development, and the inherent and acquired immunity of individuals. It is nevertheless true that local pulmonary conditions, and acquired, and, especially, inherited constitutional peculiarities render the individual extraordinarily susceptible or non-resistant to the disease, and it is these contingents which furnish the great army of phthisical victims." It must be clear, from the foregoing statement of accepted facts, that a careful consideration of exposure, heredity, susceptibility, etc., is of the utmost importance in the study of doubtful cases.

Exposure is a phase of our subject that requires, and, no doubt, will well repay, further and elaborate investigation—statistical and experimental. Little is positively known—much is, probably correctly, surmised. We must say that the probabilities of a slight hacking cough being of tuberculous origin are increased if the patient is a resident of a densely populated community or is a member of a household in which there are cases of well-developed pulmonary tuberculosis, while they are lessened if the opportunities for inhaling the germs are meager, as, for example, in the resident of a sparsely settled community or the sailor returned from a long cruise.

Heredity is certainly of the utmost importance and demands the most careful inquiry in every case. Although it is probable that no one has seen a case of direct transmission of tuberculosis to the fetus, the reports of some observers to the contrary notwithstanding, yet it is well-nigh universally admitted that tuberculous patients transmit to their offspring a peculiar susceptibility to the disease, and the testimony of a great number of careful and creditable observers makes it certain that about one-half of all tuberculous patients belong to families in which other members have been similarly affected. That this inherited susceptibility is a most profound impression is attested by the demonstrable pertinacity with which it clings, generation after generation, to those families in which it has once obtained a foothold.

Susceptibility may be acquired in a variety of ways, some known, many unknown. Attention will only be called to the fact that the local pulmonary conditions attendant upon influenza, measles, bronchitis, and pleurisy render the patients more than ordinarily liable to tuberculosis.

In the early diagnosis of pulmonary tuberculosis a clear and full medical history is always of the utmost importance, although obtaining this is often a very difficult feat. Patients are not prone to make wilful misstatements, but some of the most suggestive of the early symptoms seem to them insignificant and unworthy of mention, or they may have escaped notice altogether. However, careful and direct questioning, especially in the presence of a close associate, will usually bring forth a fairly clear and it may be a graphic account of the access and early symptoms.

If we refer to the great wealth of accumulated literature upon pulmonary tuberculosis, we shall find the most disappointing uncertainties as to the mode of access; and, usually, particular attention is directed to the alleged fact that the mode of access is very varied. This I believe to be erroneous, and, as the result of a considerable experience, especially in private practice, I am prepared to maintain the position that a remarkable uniformity exists in the earliest symptomatology in cases of pulmonary tuberculosis.

The earliest symptom is usually a slight and unobtrusive cough, but having peculiar characteristics. It is of the variety known as "hacking," but often, if not generally, consists of a single effort. It is likely to occur only after a change of posture or after a deep inspiration. Deep breathing may cause the cough, but if the deep inspiration is repeated the cough is not reproduced. It is an infrequent cough, and may not be heard a half-dozen times in twenty-four hours. It is unaccompanied by expectoration. This cough may continue for a week, or for a month, when a change comes over the scene. The cough becomes more frequent, and there are several "hacks" with each effort, especially on rising in the morning, and perhaps on retiring at night, and after eating. Occasionally there is expectoration of a little mucus, which may be streaked with pinkish blood. At this time the patient may feel languid, complain somewhat of headache, have an impaired appetite, with a coated tongue and a tendency to constipation, and be conscious of being in a febrile condition. This exacerbation will be of a few days' duration, and may be so slight as to attract but little or no attention, or it may be so marked as to require the services of a physician, but this is unusual. A small or moderate hemoptysis may occur at this stage, independently of the mildness or severity of the other symptoms. At the termination of this febrile attack there is usually a slight purulent or mucopurulent expectoration, although this may escape notice. Attacks similar to the one described, but each more pronounced than the preceding, are likely to recur at intervals of from four to six weeks, but after the first one or two the local and general manifestations will have assumed such characters as to leave no doubt of their nature.

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Without considering further these general features we shall pass to the diagnostic value of the individual symptoms of early tuberculosis.

The cough, after one or two febrile exacerbations, usually becomes more frequent. It is not completed with a single effort; is more open; is provoked by changes in posture, sudden exertion, deep breathing, laughter, etc.; may often be quickly reproduced by deep inspiration; and is accompanied by more or less mucopurulent expectoration, which is most abundant and most purulent in the morning upon rising. At this stage rarely, but at a later period oftener, the cough may be paroxysmal and occasionally accompanied by the vomiting of food after a meal. A cough of this kind is highly suggestive. The hollow cough, with heavy nummular expectoration, distinctive to even the laity, needs no extended mention. It will be understood, also, that in every case the expectoration should be submitted to microscopic examination. The discovery of the bacillus tuberculosis must be considered conclusive evidence of the existence of the disease under consideration, but the inability to discover this organism, even when many specimens are examined, cannot, in the early stages, consistently lead to a positive opinion in the opposite direction.

Hoarseness is a not uncommon early symptom, and recurrent attacks, which are not due to other easily discoverable causes, are highly significant of pulmonary tuberculosis. The hoarseness to which I refer is not due to laryngeal tuberculosis; is transitory and recurrent; has recognizable characteristics that are peculiar, and occurs in a pretty large proportion of cases.

Hemoptysis is a symptom of the greatest diagnostic importance. It occurs in only a moderate proportion of the cases of early pulmonary tuberculosis, but it is very significant when it does appear. As a matter of fact, an hemoptysis preceded by a period of cough is, practically, pathognomonic of tubercles in the lungs. It is true that there may be spitting of blood from spongy gums, from hemorrhage from the posterior nares, throat, etc., but, clinically, these cases are easily properly classified. The hemoptysis may be small, moderate, or profuse; transitory, more or less persistent or recurrent; but it is usually small or moderate and solitary, or mildly persistent for several hours, although it is not infrequently recurrent. It is seldom very profuse, although it may be in rare cases so profuse and persistent as to destroy life. Although cough is almost always the initial symptom, and the patient may have had one, with slight expectoration, for several weeks or months, together with one or more febrile attacks, yet the fact remains that in a considerable number of cases hemoptysis is the first symptom that excites the alarm of patients and their friends and that leads to a consultation with the physician. In such cases only the closest questioning will correct the error of observation.

Thoracic soreness and pain occur early in most cases of pulmonary tuberculosis. The pain may be a sharp, evanescent stitch, recurring at irregular intervals, with long periods of absence; it may be less acute and continuous for several hours or a day or two; or it may be a sense of soreness, noticeable with inspiration, especially deep inspiration, and it may be attended with tenderness upon pressure. The favorite location for these pains is the region round about a point midway between the nipple and the clavicle. They may be axillary, supraclavicular, suprascapular, or even basic, although the last is uncommon. The location is often indefinite, as is also the character, but this very indefiniteness in character and location is in itself a suspicious symptom.

The early febrile attacks are usually accompanied by gastric and intestinal disturbances. The tongue is coated, the appetite is impaired, and the bowels are constipated. Excretion generally is deficient, and the condition is often classed as a bilious attack. Subsequently the appetite is likely to be erratic and somewhat impaired, while the powers of digestion and assimilation are diminished. In some rather infrequent cases there is present a veritable dyspepsia of tuberculosis, and in other rare cases there may be, in the early stages, no impairment whatever of the appetite, of digestion, or of the assimilative powers.

Nutrition, corporeal weight, strength, and endurance are early diminished. The patient may have a ruddy countenance and the general appearance of health, but an appeal to the scales will show a loss of weight, and it will be found that in the exercise of strength there is an inability to duplicate records, and feats that were formerly accomplished with ease are only possible with difficulty and with added exertion. Endurance is markedly impaired. The patient tires easily and unaccountably. This symptom is one that early attracts the patient's notice, although it may require pointed questioning to obtain the information.

The thermometry of early tuberculosis is deserving of very careful attention. Frequent observations of the corporeal temperature for several days will clear up many a doubtful case. During the febrile attacks to which I have referred the temperature usually ranges from normal to 100° F. in the morning to between 100° F. and 103° F. in the evening. At these times, however, more frequent observations should be made, and it will often be found that the highest temperature occurs in the late afternoon rather than in the evening. At other times the temperature is usually slightly elevated during the late afternoon and evening. In a patient with a slight cough the regular elevation of the



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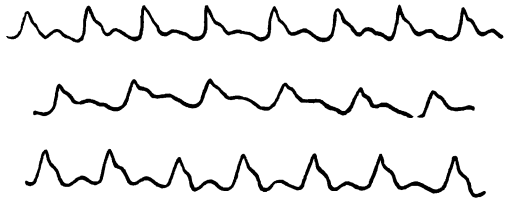
body-heat from one-half to one-and-one-half degrees is very significant. An evening elevation of temperature may occur in some other diseases, *e. g.*, in anemia, obscure suppuration, etc.; but these are usually readily eliminated from the diagnostic field. In some cases the patient may be free from fever in the interim between the exacerbations, but this is uncommon.

A study of the pulse will afford some of the earliest indications of the existence of pulmonary tuberculosis. From the start the characteristics of the pulse are changed from the normal. Usually the pulse is accelerated, and the rate is modified very little by position. The latter feature is very suggestive, and whenever the pulse-rate is found to be practically the same, whether the patient be lying, sitting, or standing, the most careful scrutiny is demanded. To the finger the pulse may be described as being "hurried," irrespective of its rate, although the rate is usually notably increased—ranging from 75 to 100 per minute. In some cases in the early stages the rate may not be perceptibly accelerated, and in others the frequency of the pulse may be very great, *e. g.*, 120, 140, or 160 per minute, but such cases are rare. It is, however, from sphygmographic tracings that we obtain the most valuable aid from the pulse in the diagnosis of early pulmonary tuberculosis. From this alone, in the great majority of cases, may be confidently predicated the presence or absence of tuberculosis in a doubtful case. Typical examples of tracings from cases of early tuberculosis are here introduced:



There are two classes of cases in which the question of differential diagnosis may arise in which the sphygmographic tracings afford no assistance. These are early typhoid fever and febrile attacks generally in some of those persons who are recognized as being hereditarily predisposed to pulmonary tuberculosis. These conclusions are derived from some studies in sphygmography upon which I am now engaged and which will soon be published.

The importance of a careful physical examination of the thorax needs no extended mention. The flattened chest will at once attract attention and be given its due weight in summing up the probabilities. It must be remembered, however, that although ill-formed, abnormal chests appear with frequency, yet well-shaped and symmetric thoraces are encountered in the majority of cases of tuberculosis. There will be usually found in the earliest stages a respiratory capacity below the normal, and a narrow range of the thoracic excursions, unless the patient has previously practised deep breathing. In many, if not in most cases, the respiratory movements at the upper portion of the chest, on one or both sides, are manifestly diminished. In practising percussion preference should be given to the method known as "stethoscopic percussion," because in this manner the extent and degree of any consolidated patches of lung-tissue may be detected with greater certainty than by the ordinary method, and it is possible to detect and locate small areas that would otherwise remain uudiscovered. During the febrile attacks more or less extensive areas of dulness may be found which did not previously exist, and these disappear with the decline of temperature. This is due, as is well known, to pulmonary inflammation in the vicinity of the tuberculous deposits, and is very characteristic. It will be borne in mind that any dulness at the apex is highly suggestive of pulmonary tuberculosis, but the converse does not hold good, as there may be present a deposit of tubercle with no perceptible impairment of the percussion-note. In practising auscultation it must be remembered that there is, normally, a difference in the respiratory sounds of the apices of the two lungs—those of the right being loudest and roughest. During the febrile exacerbations there will be found but little difficulty in detecting the abnormal sounds characteristic of early tuberculosis; but at other times much care, skill, and tact may be required in their recognition. It is scarcely possible to overestimate the diagnostic importance of localized crepitation, of rough or rasping inspiration below the clavicle, and of whistling or tubular expiration. Less distinctive, yet of suggestive significance, are the wavy infraclavicular inspiration and the weak respiratory sounds of the extreme apex.

In conclusion I will say: Satisfactory diagnoses in cases of early pulmonary tuberculosis are to be made only upon a broad base of practical knowledge. It must be apparent that it is impossible to compress within a short paper and a few minutes more than a modicum of that which many volumes cannot embody nor years attain. It is believed, however, that sufficient has been presented to prove that the early diagnosis of the affection under consideration presents no insurmountable difficulties, and that the exercise of a reasonable amount of care and skill, and in a few cases the lapse of a little time, will almost invariably lead to correct conclusions. In attaining these results no portion of our knowledge concerning pulmonary tuberculosis should be neglected, but particular attention may well be given the points mentioned, the most important of which are the following:

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1. Preliminary history, including heredity, exposure, and susceptibility.

2. Medical history, including the mode of access and subsequent course.

3. Symptomatology, including the character and significance of the cough and expectoration; hoarseness; hemoptysis; pain and soreness; gastric disturbances; nutrition, weight, and strength; temperature; pulse and sphygmography; thoracic inspection and mensuration; percussion and auscultation; examination of sputum, etc.

34 WASHINGTON STREET.

## GENU VALGUM; WITH OBSERVATIONS ON CORRECTIVE OSTEOTOMY.[1]

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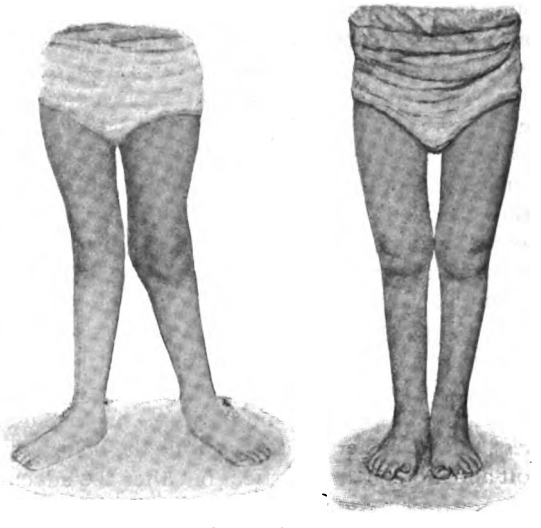
WHEN the knee lies internal to a line drawn from the acetabulum to a point on the dorsum of the foot, midway between the malleoli, a condition of *genu valgum* or knock-knee is said to exist. It is only, however, to aggravated deviations from this rule that the term can be surgically, and hence properly, applied, because moderate degrees of the deformity are normal to the human creature; that is to say, the center of the knee will normally be found on the inside of the line just mentioned. This is due to the fact that the axis of the thigh, on account of the length of the transverse pelvic diameter, does not coincide with that of the leg, but intersects it at an external obtuse angle of large degree, thus throwing the knee to the inner side of the acetabulo-malleolar line. This state of affairs is much more pronounced in the female than in the male, because of the greater pelvic width in the former, thus rendering still less coincident the femoral and crural axes. Such divergence in axial trend must be harmonized by some mechanic factor at the point of articular contact, and this correction is brought about by an elongation of the internal femoral condyle, which is from one-quarter to one-half inch longer than its fellow.

Statistics show that *genu valgum*, in relation to general surgical diseases and malformations, bears the ratio of about one to twenty-four, and to its congener, *genu varum* or bowlegs, of a little more than one to two, bow-legs being observed a trifle less than twice as frequently as knock-knee. The deformity may be unilateral, bilateral, or mixed, being in the latter instance associated with bow-leg in the opposite member; and when bilateral it may present different degrees of variation in the two limbs.

[1] A paper read before the Northern Tri-State Medical Association, at Coldwater, Michigan, July 9, 1895.

*Genu valgum* has been noticed in the newborn; but it usually does not appear until the child commences to stand or to walk, and the cause is almost always rachitis. As stated by Young,[1] "Rickets softens the bones, weakens the muscles and ligaments, and the superincumbent weight of the body accomplishes the rest." Other elements enter into the etiology of this condition, such as inflammations, with or without trauma; displacing fractures; paralyses, as the result of nutritional disturbances; the postural factor in occupations, etc., but the disease called rickets must always remain as the most frequent cause.

FIG. 1. FIG. 2.



May 7, 1894.—Genu valgum.—August 7, 1894.

The pathology of *genu valgum* includes primary softening, with secondary hardening of the osseous structures; linear hypertrophy of the internal condyle, together with atrophy of the external; stretching and weakening of the internal lateral ligament, with corresponding contraction and condensation of its fellow, externally; muscular changes on account of position or disease, and greater or less rotation and antero-posterior curvature both above and below the joint.

The symptoms, signs, and hence the diagnosis of this deformity are readily recognized, the naked-eye appearances being amply sufficient. The following are a few points bearing upon this part of the subject: The feet are more or less widely separated and everted when the limbs are extended and the knees are in contact; there is impossibility of approximating the feet when the limbs are in the position just described, together with excessive lateral joint-mobility, disappearance of the deformity on flexion of the legs upon the flexed thighs, supposed

[1] Orthopedic Surgery, page 290.

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to be due to lack of antero-posterior thickening of the internal condyle, etc.

In the matter of prognosis it has been stated by some writers that time is corrective; but I doubt if any well-authenticated case of formerly pronounced and latterly "out-grown" *genu valgum* can be exhibited. Recovery by the operation of time, that is, by natural growth and the action of better-toned muscles, except in the mildest types, is not to be expected. Deformity may not increase, certainly *will not* increase after the osseous eburnation that frequently follows rickets; but active mechanic interference must be instituted if we desire to do our patients any substantial good.

This brings us to the most important and, at the same time, the most interesting portion of this subject, the treatment. Naturally the matter falls under two heads, viz.: First, non-operative; second, operative. Under the first we note such manipulative factors as massage and pressure, the latter exerting its force in a direction, of course, away from the central axis of the body, while the extremities of the limb are fixed. This pressure can be applied either by the hand of the masseur or by properly constructed apparatus, to be worn indefinitely, but taken off when the patient is in bed.

This apparatus-treatment is, in my opinion, a relic of barbarism, and ought to be relegated to the companionship of its fellows in the dusty garret of surgical crudities. It may be possessed of some usefulness, though never necessary, while the bones are yet soft and more or less elastic; but after the advent of sclerosis its employment, in view of the better means obtainable, is, of course, absurd. It is a slow, clumsy, often ineffective, discouraging, and torturing method.

The way to correct a case of *genu valgum* to-day is to resort to either osteoclasis or aseptic osteotomy. By the former is meant the securing, through any well-directed force, of a simple fracture of the femur at or near the proper point. This method is inexact, and, although it furnishes the great desideratum of securing correction without the necessity of compound fracturing, has not been extensively adopted by operators. The *noli me tangere* in the surgery of the past is no longer the bugbear of the present, and when micro-organic life is not introduced into his wounds by the surgeon or by others—that is, in the absence of contact-infection, he may be certain of kindly results in his cutting-operations. I confess I am partial to osteotomy for the correction of curvatures of the long bones, and, through my experience, I have reason to be so.

Several excellent operations have been instituted within the past twenty years for the correction of *genu valgum* by osteotomy, although deliberate osteal sections for the same purpose were undertaken long ago, the first having been performed by Meyer, of Würzburg, in 1851. The best of these operations are the following three: 1. Ogston's; 2. Macewen's; 3. MacCormac's.

The first consists in separating the internal condyle from the shaft of the bone by a vertical section, and, after sliding the condyle up the diaphysis a sufficient distance, fastening it there. This procedure, however well it may correct the deformity, is never justifiable, in view of the fact that the great knee-joint is unnecessarily entered; for other operative methods fully as efficacious avoid, and very justly, the penetration of this important articulation. Hence, the Ogston method will be discussed no further in this paper.

The remaining two operations, viz., the Macewen and the MacCormac, are the ones I propose considering. Although the former is the product of a mighty mind and is recommended to-day by almost, if not quite, all of the text-books as superior to the MacCormac, it is, in my opinion, inferior to the latter, or rather to the modified MacCormac, as I shall proceed to show.

In the Macewen operation the incision is made vertically on the *inner* aspect of the thigh, and the bone divided "at a point where the two following lines meet; one drawn transversely, a finger's breadth above the external condyle, and a longitudinal one drawn one-half an inch in front of the adductor magnus tendon." In the MacCormac operation the incision is made transversely on the *outer* aspect of the thigh at a point about two inches above the lower femoral epiphysis.

In an osteotomy for *genu valgum* on a boy of five that I performed a year ago the MacCormac operation with some original modifications was chosen. These modifications were the following: 1. A change of incision from the transverse to the vertical direction; and 2, an incomplete section of the bone, with the production of a "green-stick" fracture in the portion undivided.

First. The MacCormac incision is transverse, and can only be accounted for on the ground of permitting better vision during the procedure. A surgeon, in the first place, should see with his fingers, and, in the second place, he should make incisions that disturb to the least possible extent consistent with thorough work the normal anatomic relations of the structures through which he needs must pass. A transverse incision in this operation divides the fibers of the vastus externus; a vertical one simply separates them. Union after transverse section of striated muscle is practically never followed by restoration of purely muscular continuity. Fibrous tissue takes the place of the destroyed muscle-cells, and a plane of connective tissue subsequently appears at the site of the former incision, thus damaging, in direct proportion to the amount of connective tissue present, the contractility and hence

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the usefulness of the muscle. It is needless to say that longitudinal separation of the muscle-fibers, when permissible, is better surgery than transverse section.

Second. In no text-book or operator's work have I seen advocated the securing of a "green-stick" fracture as a factor in the correction of *genu valgum* or *varum*. It is, of course, possible only in the young; but children form and will continue to form the great majority of cases for operation. "Green-stick" fracturing is impossible in the Macewen operation, because the *inner* portion of the femur is at once divided. In the MacCormac operation, however, the *outer* portion being the first to undergo division, the remainder, after gentle testing, may be subjected to pressure sufficient to fracture incompletely, and thus permit of deformity-correction without total loss of osseous continuity. This can generally be effected, though not always, and, as can readily be seen, is a great advantage over complete bony section. I at once noticed the value of the MacCormac site in relation to this operative feature.

In the performance of these osteotomies, after placing the limb on a sand-bag, the desired section of the bone is readily accomplished by the free use of the mallet and chisel, and at the same time the correction is made and a plaster-cast applied over proper aseptic dressings, and allowed to remain for from two to three weeks without disturbance.

When one limb is deformed to a greater degree than its fellow, if the variation be not pronounced, a compensatory tilting of the pelvis will overcome the moderate difference in the length of the limbs caused by correction; but when this variation is considerable a sufficiently long, cylindric section of the femur in the limb that shows the greater deformity must be removed in order to render the limbs of equal length.

To the Macewen operation I find the following objections:

1. It has to be performed in the neighborhood of a greater number of important structures than is necessary, viz.: The internal saphenous vein and nerve, the anastomotica magna artery, and to a certain extent the internal, upward prolongation of the synovial membrane lining the knee-joint, in regard to which Gray[1] states: "On each side of the patella the synovial membrane extends beneath the aponeurosis of the vasti muscles, and more especially beneath that of the vastus internus." 2. The line of section is, for obvious reasons, too close to the epiphysis. 3. It necessitates the cutting of a wider expanse of bone than is desirable. 4. It precludes the possibility of an advantageous "green-stick" fracturing.

The following points of superiority attach to the modified operation of MacCormac:

1. The incision *separates* the muscular fasciculi, and does not appreciably *divide* them. (This condition of affairs I know obtains in the Macewen operation, and, therefore, the latter is not inferior to the former in this respect, but the innovation is an improvement on the old MacCormac.)

2. The only important structure to be avoided, with the exception of the popliteal artery, which, by the way, should be borne in mind during *any* osteotomy for the remedy of this deformity, is the peroneal nerve lying in close proximity to the tendon of the biceps; but this chord, by virtue of the trend of the incision, is in very little danger.

3. The operation permits of partial, external bone-section with a maintenance of internal, osseous continuity.

In conclusion allow me to recapitulate the modifications of the MacCormac operation that seem to possess merit:

1. The employment of the longitudinal instead of the transverse incision. 2. The aim to secure correction of the deformity without total loss of osseous continuity, through the agency of the so-called "green-stick" fracture.

The former modification is an exemplar of neater and hence better surgery, and the latter not only renders the MacCormac method the preferable one in the majority of instances, but also, by greater ease of manipulation and by greater certainty of good results, changes the dictum of many authorities as to the treatment of cases in which such procedure is possible, viz., the children afflicted with this distressing deformity; for, while heretofore it has seemed best to defer operations on the young and to try the effect of corrective apparatus, it can now be stated as a recognized fact that in these same boys and girls, who have all the time imaginable at their disposal, and in whom center all the possibilities associated with the training and molding of structures actively engaged in the processes of evolution, is found every indication for the performance of one of the most humane as well as one of the most brilliant operations in the realm of modern aseptic surgery.

[1] Eighth edition, page 329.

## VULVOVAGINAL ANUS, WITH REPORT OF A CASE.[1]

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CONGENITAL malformations of the rectum and anus are of rare occurrence, but they are of so much importance to the future welfare of an infant, both physically and mentally, that they deserve earnest attention. Operative interference is often success-

[1] Read before the Golden Belt Medical Society of Kansas, July, 1895.

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ful, and should be attempted in every case, no matter how small the chance of affording relief may be; for in the bad cases it is better that the little patient should perish in an attempt to remove the affliction than to carry so objectionable a deformity through life; and, besides, many cases would rapidly succumb if not promptly operated upon.

Malformations of the rectum and anus may be divided into four principal kinds:

1. *Atresia ani*, in which the anus alone may be absent, or the entire lower portion of the bowel as far as the upper border of the internal sphincter. Sometimes a small fistulous opening remains, which is usually situated further forward in the perineum than normal. A dimple often marks the spot where the anus should exist, and the fibers of the external sphincter may be present beneath the skin.

2. *Atresia ani et intestini recti*, in which the colon ends in a blind pouch at the level of the last lumbar vertebra, or on the left side at the upper border of the sacrum.

3. *Atresia recti*, in which the rectum ends at some portion of its course without communicating with the anal portion of the bowel. The latter, however, is present, projecting upward from the anus like a short glove-finger. In rare cases the rectal pouch may open into the vagina.

4. *Cloaca congenita*, in which the rectal pouch, lying generally in the hollow of the sacrum, opens into some portion of the genital or urinary tract. The opening is often small, and may lead into the rectum through a narrow canal. In the male sex the opening may be into the lower portion of the bladder, or into any part of the urethra; while in females it is often into the vagina, generally into the vulva near the posterior commissure (vulvovaginal anus). Very rarely the rectum communicates with the uterus. When the opening is in the upper part of the vagina the latter is often double, the feces passing through but one of the divisions.

The ileum or jejunum may end in a *cul-de-sac*, or present more or less of a stricture at any point; or the small intestine may open at the navel or in the inguinal region. Dinsmore observed a case in which the opening was on the shoulder.

In order properly to understand these various malformations it is necessary to study the method of formation of the rectum in the fetus. The rectal and anal portions of the bowel are not formed in a continuous tube, as one would naturally imagine, but exist as separate structures, which gradually approach each other and finally unite about the fourth week. In other words, the rectum ends at first in a blind pouch, while the anal portion begins in a puckering of the surface, which slowly deepens, as though the skin were being pushed inward by the end of a finger, until it unites with the rectal pouch above.

Another important point is that at this stage of development the genital and urinary tracts open into the rectal pouch, so that the anus becomes a cloacal opening such as exists in birds. Just how it occurs we do not know, but certain disturbances in intra-uterine life may check the proper development of the parts at any period. The anal portion of the bowel may not form at all, or may fail to unite with the rectal portion above; or an abnormal opening of the rectum into one of the urinary or sexual organs may result.

These accidents of development seem to appear more frequently in certain districts and in certain families. Wurtzer mentions a family in which out of ten children three were afflicted with occlusion of the rectum, while König observed the deformity in a father and two sons. When such an occlusion exists, the infant usually promptly dies unless relief is afforded by operation, but this is not always so. Bartholin saw a man forty-two years old in whom the feces were periodically evacuated through the mouth, the intestine having doubled on itself and opened near the upper end of the esophagus. Baux observed a girl of fourteen years who evacuated the contents of the bowel through her mouth every two or three days. A similar case was seen by Denys.

In the present paper I shall consider the vulvovaginal anus only. Approximately between 60 and 100 cases have been reported. The opening is always in the posterior wall and generally low down near the posterior commissure. When it is high up there is often a double vagina, the bowel communicating with only one side. The opening may be small or large, and it is usually so guarded by a sphincter muscle that fecal matter is perfectly retained, although incontinence sometimes exists. The deformity is often not at all incompatible with longevity or even with a certain amount of physical comfort. Morgagni mentions a Jewess thus afflicted who lived to be over one-hundred years of age. Ricord cites a case in a woman of twenty-two years whose husband during the course of three years discovered nothing abnormal in her condition. Dwight reports a case in a woman of thirty-two years, Deutsch one in a woman of twenty-nine years, and Tuck one in a woman of twenty-six years.

The bowel nearly always runs parallel with the perineum almost to the coccyx before it turns upward, and there is often a depression of the skin where the anus ought to be. A normal anus may also be present, and the vulvovaginal opening may be closed by a membrane or by a valvular fold of mucous membrane, so that no fecal matter enters the vagina. In fact, cases have been recorded in which the deformity has not been observed until after marriage, when the opening has been accidentally rendered patulous. In one instance the wife believed

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herself to have been injured by undue violence in coitus, and medico-legal complications resulted.

When the right operation is properly performed the best results are often obtained; otherwise more harm may be done than good. Curling has collected 100 cases of malformation of the rectum, including eleven cases of vulvovaginal anus. Operative interference was successful in ten of the latter, only one resulting fatally. But, in spite of a successful operation as such, failure may sometimes result from other congenital complications. It is not necessary, and often not desirable, to operate at once upon cases of vulvovaginal anus, if the opening is sufficiently large to permit defecation. Very young babies may not withstand an operation as well as somewhat older children, and the condition is often such that delay is not at all dangerous.

Some operators prefer to open th e bowel in the anal region near the coccyx by a simple longitudinal perineal incision, suturing the cut edges of the gut to the skin, and closing the vaginal opening either at once or subsequently. This is not a commendable method. As is well known, it is not always an easy matter to close a rectovaginal fistula, and, in addition, the proper anal sphincters may not be retained.

Another method of operation is to split the entire perineum and bowel from the vaginal opening back to the normal position of the anus, throwing the lower portion of the vagina and the anus into one, and leaving the repair of the vagina and perineum to a future operation. But this is a bungling procedure at the best, which may lead to prolapse of the vagina or uterus, in addition to a long period of treatment and an imperfect functional result.

Taking all things into consideration, the method of Rizzoli, which I employed in the case to be described, gives the best results, enabling the operator to restore at once the normal condition of the parts at a single operation. The internal sphincter, with its nervous mechanism, is retained, so that the anus can immediately perform its proper function, only temporary incontinence, or perhaps none at all, resulting.

The case I desire to report in this connection was that of a twelve-months-old baby, well developed and well nourished, having an anal opening in the posterior wall of the vagina just within the vulva. The opening was about the size of a wheat-straw, and was so provided with a sphincter that no incontinence of feces was present. A small dimple marked the spot where the normal anus should exist. There was no evident hymen.

Under chloroform-anesthesia a longitudinal incision was made in the perineum from near the tip of the coccyx almost to the posterior vulval commissure. A sound was inserted into the bowel through the vaginal anus to serve as a guide, and the perineal incision was gradually deepened until the rectum was reached. This was then loosened in its entire circumference from the surrounding tissues, including the posterior vaginal wall, by means of blunt instruments, and careful snipping with a pair of blunt-pointed scissors. The end of the bowel was then cut out from the posterior wall of the vagina with a pair of fine scissors, leaving an opening slightly larger than the original anus. This opening was at once closed by fine sutures. The entire bowel, including the vaginal anus, which I slightly enlarged, was then swung backward through the perineal incision to its normal position in front of the coccyx, and the edges of its orifice united by a number of silk sutures to the cut edges of the skin. A few deep stitches served to unite the perineum in front, thus restoring the parts to the condition in which they appear in a normal child. The anus, however, was left rather larger than natural in order to allow for subsequent contraction, although the method of suturing the mucosa to the skin prevents this in great measure.

The sutures were removed on the eighth day, and the child was sent home on the tenth. The anus functionated perfectly from the first, no incontinence being present at any time. This was owing to the fact that the internal sphincter, with its nervous connections, had been preserved.

I heard from the case four months after the operation. The bowel was then performing its functions in a normal and satisfactory manner.

## CLINICAL MEMORANDA.

### *UNUSUAL APPEARANCE OF A CIRCINATE RINGWORM.*

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THE appearances witnessed in a case of ordinary superficial ringworm that presented itself at my clinical service at the Philadelphia Polyclinic were so unusual that a brief description and illustration may not be without interest. The case in question occurred in a girl about ten years of age, and the lesion was situated upon the right forearm slightly below the elbow on its outer aspect. The outer and larger ring of the eruption was found to have a diameter of one-and-three-quarters inches and to be perfectly round, having a number of vesicles around the borders of the lesion. This portion of the diseased area did not present anything unusual, but it was the condition that was witnessed in the center of this ring that was the most interesting part of the appearance. Within this larger ring were found five smaller lesions which were arranged in the following manner: They occupied the center of the larger lesion, and ranged from one-eighth to one-half of an inch in diameter. Although these latter lesions were separate in themselves, they were closely packed together and to some extent resembled the appearances witnessed in a clover-leaf. The outer or larger lesion was somewhat older than those included within its circle, the smaller

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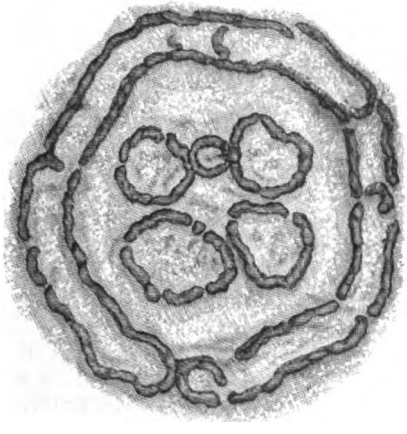
ones being only of two days' duration, while the older one was of about two weeks' existence.

The accompanying drawing with the microscopic report is the work of my assistant, Dr. Jay F. Schamberg. The scales were immersed in a 20 per cent. solution of potassic hydroxid, and examined with a Zeiss one-twelfth oil-immersion lens. The scales from the larger or outer ring showed abundant mycelia of varying size—some short and broad, others long and thread-like.



There seemed to be rapid fructification, as evidenced by the prolific arborescent bifurcation. Spores were almost entirely absent. The scales from the inner circles showed much less abundant fungus. The mycelia were for the greater part long and narrow.

In looking over the literature of the subject of this form of vegetable parasitic affection I am unable to find any reference to a similar arrangement of the lesions, but it has been my fortune to have recorded[1] recently another unusual arrangement in which the patch was made up of two rings that were concentric and not connected the one with the other.

315 SOUTH EIGHTEENTH STREET.

## ANTECEDENT ORCHITIS IN A CASE OF MUMPS.

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ABOUT three years ago a man of thirty-two years, the father of one child, three years of age, presented himself at my office, and complained of pain and tenderness in the left testicle. This, on examination, was found distinctly swollen and tender, the swelling being almost entirely confined to the testicle proper. There was also slight feverishness. There was no urethral discharge, and no evidence or history of any local cause to account for the condition; further, the man himself denied sexual intercourse with any one for the preceding two weeks, his wife having had an unusually prolonged menstruation, from which she was just recovering. The treatment advised was local rest for the parts and the free application of iodoform-ointment. The next day I was requested to see the man at his house and found him in bed, with a temperature of nearly 104°, a quickened pulse, and marked prostration. The testicle was still further enlarged and very tender, being fully twice the size of the opposite organ. On the left side of his face (the same side as the inflamed testicle), involving the parotid region, was a pronounced swelling, unmistakably the parotid gland itself. The patient complained of some discom fort due to the tension caused by the swelling, and of some trouble in mastication, but otherwise his attention was concentrated on his swollen testicle.

The succeeding history is, briefly, that of a steady and gradual decline of the testicular and the parotid swellings and of the fever, so that in a week the patient was entirely well. Three months later the affected testicle was found atrophied and soft, being about one-half its normal size.

This then seems without question to have been a case of so-called metastatic testicular inflammation of mumps, *preceding* the appearance of the parotid manifestation, and, if any deductions may be made from a single case, it would seem that such an antecedent involvement of the testicle would presage a severe attack of parotiditis.

In the literature at my disposal I have failed to note any reference to inflammation of the testicle preceding inflammation of the parotid glands in mumps. This history, however, proves that such a course of events may take place.

[1] Journal of Cutaneous and Genito-urinary Diseases, August, 1895, p. 343.

# EXPERIMENTAL NOTE.

## SOME EXPERIMENTS RELATING TO THE TOXIC NATURE OF THE URINE OF DIPHTHERIC PATIENTS.

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THE following experiments were made during the past winter with the object of determining what action the urine (and its products) of diphtheric patients would have upon animals, and inferring as far as possible from this the nature of these products. The experiments are far from complete, but they were continued throughout the winter and were carried as far as my resources would allow.

On October 26, 1894, I received, through the courtesy of Dr. C. C. True, a specimen of urine from Miss F., a school-teacher, who had contracted a disease, clinically diphtheria, from two of her pupils. A bacteriologic diagnosis failed to disclose the presence of Klebs-Loeffler bacilli, and before a second examination could be made the young lady died. As it was very difficult to obtain such urine as I wanted, I proceeded with this urine and made Experiments A, B, C, D, E, mentioned further on in this article.

This urine was examined with the following results:

Specific gravity, 1028; reaction, acid; color, between a *café olée* and a salmon, being very cloudy. There was an excess of uric acid. Albumin was present in large quantities. No sugar was found. The urine was sterile both by microscopic examination and by culture-methods.

After examination the urine was treated as follows: To one part was added 0.02 per cent. carbolic acid. This is designated No. I. Another portion was slowly sterilized; that is, it was subjected to a temperature of 60° C. for one hour each day for five consecutive days. This

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treatment cleared up the color described, leaving a clear urine, with a slight white deposit at the bottom of the flask. Upon standing several days after sterilization the original color and cloudiness returned.

Thirty parts of this urine were added to sixty parts of agar-agar. The mixture was rendered amphoteric, and after hardening in a slant after sterilization, it was inoculated with a pure culture of diphtheria-bacilli. There was no growth in the tube.

This urine was kept for several weeks without opening, when carbolic acid was added to the extent of 0.5 per cent. The urine was then filtered and the filtrate designated I *a*. This filtrate yielded a precipitate when heated, when absolute alcohol was added, and when a saturated salt-solution was added.

A portion of the filtrate I *a* was precipitated by the addition of salt to saturation, the precipitate filtered out and the resulting filtrate designated I *b*. Another portion of the filtrate I *a* was precipitated by the addition of absolute alcohol and filtered, the filtrate being designated as I *c*.

Another portion of the filtrate I *a* was precipitated first with salt and filtered, and this filtrate precipitated with absolute alcohol and filtered. This last filtrate was designated as I *d*.

The following experiments were made upon animals. All inoculations with these products and the products of other urines were made subcutaneously with the hypodermic needle:

*Experiment A.* An old guinea-pig was given 1 c.cm. of the urine No. I that had carbolic acid added to it to the extent of 0.02 per cent. The weight of this pig was not taken at the time of inoculation. The animal died twelve days later, the post-morten examination showing the typical lesions of experimental diphtheria.

*Experiment B.* A guinea-pig weighing 330 grams was inoculated with 0.75 c.cm. of I *a*. Four days later this same pig was given 1 c.cm. of I *a*. The animal died thirteen days after the original inoculation. The typical lesions of experimental diphtheria were found after death.

*Experiment C.* A guinea-pig weighing 340 grams was inoculated with 1 c.cm. of I *b*. This animal died ten days later, and the autopsy showed the typical lesions of experimental diphtheria.

*Experiment D.* A guinea-pig weighing 305 grams was inoculated with 0.9 c.cm. of I *c*. This inoculation was repeated three days later, 1 c.cm. of the fluid being used. The animal died seventeen days after the original inoculation, having lost 80 grams in weight. The post-mortem examination showed that the animal died of pneumonia. Besides the lesions of the lungs, however, there was an excess of serous exudate in the peritoneal cavity, with slight hyperemia of the tissues.

*Experiment E.* A guinea-pig weighing 290 grams was inoculated with 1 c.cm. of I *d*. This injection was repeated two days later. The animal died seventeen days after the first inoculation, having lost 30 grams in weight. The post-mortem examination showed an intussusception of the bowels, with much inflammation surrounding it.

In the foregoing experiments two of the deaths were accidental; the remaining three showed lesions identical with those of experimental diphtheria. The question arose, Could not these lesions be produced by the toxic properties of the urine itself, from the urea and other elements contained? To answer this question the remaining experiments were conducted with products taken from the urine and held in aqueous suspension in the manner to be described; and as a check-experiment a guinea-pig weighing about 300 grams was inoculated with 1 c.cm. of the urine of a patient free from diphtheria. The inoculation had no perceptible effect upon the animal. In all of the following experiments the diphtheria-bacillus was found in the throats of the patients.

On December 22, 1894, Dr. William T. Howard, Jr., brought me a bottle of urine from a patient sick with diphtheria, who had previously been treated with the antitoxin. This is designated as urine No. II. Examination of this with the microscope showed no bacteria; cultures from it, however, showed the presence of microorganisms, but there were none of the Klebs-Loeffler variety. A piece of camphor about 1 c.cm. in diameter was added to about 100 c.cm. of this urine. Examination one week later with the microscope showed a multitude of organisms. Carbolic acid was then added to the extent of 0.5 per cent.

This urine was treated as follows: 94 c.cm. were taken and fitered; the residue was suspended in 11.5 c.cm. of distilled water, to which sufficient carbolic acid was added to make 0.5 per cent. This suspension was designated II *a*. All filtering was done through heavy filter-paper In this case the residue in suspension contained the bodies of many dead bacteria.

*Experiment F.* A guinea-pig weighing 170 grams was injected with 1 c.cm. of II *a*. Forty-six days later this animal weighed 240 grams, and was then again injected with 1 c.cm. of II *a*. This injection was followed by the minimum lethal dose of a freshly tested diphtheria-toxin. This toxin had had its minimum lethal dose determined five days previously. The animal was alive one month later, when the laboratory closed for the summer.

*Experiment G.* A guinea-pig weighing 360 grams was injected with 1 c.cm. of II *a*, followed on the opposite side of the body by the minimum lethal dose of diphtheria-toxin. This animal died four days later from anthrax contracted from an infected cage.

On December 31, 1894, Dr. Miller, of the Ohio State Board of Health, brought me a bottle of urine from a child, two years old, suffering from diphtheria. The urine was obtained on the sixth day of the disease. The specific gravity was 1022, the reaction acid. Albumin and uric acid were present. Petrie plates made from this urine showed four small colonies, none of them being diphtheric. The case had been treated with the antitoxin of diphtheria.

On January 9, 1895, Dr. Hopkins, the Health-Officer of Ashtabula, Ohio, brought me a bottle of urine from a young lady who had been suffering from diphtheria, but had been convalescent for five days when the urine was obtained. No antitoxin had been used in this case. The specific gravity was 1022, the reaction neutral. Albumin was present in large quantities, but there was no sugar. Cultures showed a few organisms, but no diphtheria-bacilli. This urine was treated as follows: One-half of the urine passed in twenty-four hours was filtered, and the residue was suspended in 37.5 c.cm. of distilled water, to which 0.5 per cent. of carbolic acid was added.

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This residue was examined under the microscope, and contained mostly an amorphous sediment, with some mucin and some small epithelial cells. This is designated as IV *a*.

The filtrate was rendered alkaline with sodium hydroxid, which precipitated some of the phosphates. These phosphates were washed off the filter with distilled water to which 0.5 carbolic acid had been added. The filtrate from this last had sodium chlorid added to saturation, causing precipitation. This precipitate was suspended in water in the manner already detailed. To the filtrate from this last, one-third of its volume of absolute alcohol was added, causing a crystalline precipitate in twenty-four hours. The crystals were like the phosphates when examined with the microscope, except that the surfaces had a peculiar feathery appearance. The crystals were suspended in 50 c.cm. of water, when they became amorphous. A portion of the suspension was tested with ammonium molybdate, and yielded the reaction for phosphorus. This last suspension is designated IV *b*.

The filtrate from this last precipitation was tested for albumin, and yielded a heavy deposit.

*Experiment H.* A guinea-pig was inoculated with 1 c.cm. of IV *b*. The animal was not weighed until eight days after inoculation, when its weight was 375 grams. Thirteen days later than this its weight was 405 grams. At this time the injection of 1 c.cm. of IV *b* was repeated. The animal died fifty-four days after the original inoculation, weighing 310 grams at death. A post-mortem examination showed inflammation of the inguinal glands and of the suprarenal capsules. The heart was much dilated. There was no excess of fluid in the serous cavities.

*Experiment I.* A guinea-pig was inoculated with 1 c.cm. of IV *a*. Five days afterward it weighed 285 grams; fifty-three days later 310 grams. The animal was now injected with 1 c.cm. of IV *a*, followed by the minimum lethal dose of the diphtheria-toxin already mentioned. This experiment was made five days after the test of the toxin. Sixteen days after this last inoculation the animal weighed 325 grams.

*Experiment J.* A guinea-pig weighing 240 grams was injected with 1 c.cm. of IV *a*, followed on the opposite side of the body by the minimum lethal dose of the same toxin used in the other experiments. This experiment was made twenty-six days after the toxin was tested. The animal suffered no inconvenience from the injections.

Another bottle of urine was brought me from Ashtabula. This was treated in the same way as No. II, the residue from 40 c.cm. of urine being suspended in 17 c.cm. of distilled water, to which carbolic acid was added to the extent of 0.5 per cent. This suspension is designated V *a*.

*Experiment K.* A guinea-pig weighing 215 grams was inoculated with 1 c.cm. of V *a*. This animal died forty-one days later, weighing 235 grams. The autopsy showed inflammation of the inguinal glands. The injections in all experiments were made uniformly in the inguinal region. There was an excess of serum in the peritoneal cavity. The right suprarenal capsule was inflamed and perhaps the left one also. The other organs were normal.

The diphtheria-toxin used in all of these cases was the same. Its strength was determined on four different guinea-pigs before being used in these experiments. Some six weeks later this toxin was found to have lost its virulence, thus invalidating experiments that were not made with it immediately after its strength was tested.

SUMMARY. A noticeable point is that none of the urine examined was found to contain bacilli of diphtheria. The experiments from A to E, inclusive, showed toxemia. From the experiments from F to K, inclusive, the following deductions can be made:

Experiment F would tend to show either that the urinary product II *a* was a mild toxin and protected the animal against a fatal dose of diphtheria-toxin after sufficient time had elapsed for immunity to be acquired, or that this product was an antitoxin that protected against the fatal dose of diphtheria-toxin when given either before or at the same time as the diphtheria-toxin.

Experiment G was uncertain in its results.

Experiment H seems to show that the second dose of IV *b* was given before the animal had recovered from the effects of the first inoculation, and that the animal died of slow poisoning, IV *b* being a toxin.

Experiment I shows the same results as F, thus indicating that IV *a* was either a toxin or an antitoxin.

Experiment J would show, if the diphtheria-toxin had remained virulent, that IV *a* was an antitoxin, IV *a* being inoculated at the same time as a fatal dose of diphtheria-toxin.

Experiment K would show slow poisoning, with a gain in weight. As the stock of toxin in the laboratory had failed, leaving some of the experiments in doubt, I sent some of the suspension IV *a* to Dr. J. H. Wright, of the Sears Laboratory of the Harvard Medical School, to see if he found any antitoxic properties in it. The following is his report:

"The material in the small bottle (IV *a*) has been tested with negative results, no antitoxic power being shown. The test was as follows:

"Guinea-pig No. I, weight 640 grams, received subcutaneously 1 c.cm. of your fluid, and immediately afterward $\frac{1}{10}$ c.cm. of diphtheria-toxin, also subcutaneously. Death followed about the fifth day, with the characteristic lesions of toxin-poisoning, identical with those of experimental diphtheria.

"Guinea-pig No. II, whose weight was 640 grams, received subcutaneously 1 c.cm. of your fluid, and immediately afterward $\frac{1}{10}$ c.cm. of toxin, also subcutaneously. Death followed in about four days, with the characteristic lesions of toxin-poisoning, as in the case of pig No. I.

"The toxin used was tested a few days before on a pig of 520 grams' weight, death following in about four days with the characteristic lesions. It is apparent, therefore, that the material submitted by you has no neutralizing effect upon the toxin of diphtheria."

These experiments of Dr. Wright's, coupled with my own, would tend to show that all the products used were toxins; those in suspension being of a milder character than those used in the Experiments A, B, C, D, and E, which contained all the elements of the urine except the residue precipitated out in each case; the albumins contained in the urine in these first five experiments being probably the most toxic agents. The products used after Experiment E contained practically no

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albumin, and were not uniformly fatal, as were the experiments preceding E. In the experiment in which non-diphtheric urine was used no evil effects were produced, showing that the constituents contained in one c.cm. of such urine were not toxic.

A review of these experiments brings the following questions to mind: To what extent would it be possible to use these milder toxic products of the urine in cases of contagious disease in conferring immunity to such diseases? If possible, how could the necessary dose be ascertained? Cannot such a method be applied to diseases in which the exciting cause is not now known? Thus, in a disease like pertussis, in which the toxemia is not marked, might not an increase of the toxin stimulate the body-cells to greater reaction and a consequent more rapid development of the neutralizing material that produces the ultimate immunity to the disease?

Could a child that had been exposed to scarlet fever be protected by the injection of a mild urine-toxin whose toxic strength had been ascertained?

In conclusion, I have to thank Dr. William T. Howard, Jr., for many suggestions during the course of the work, and for the help of his assistants when necessary.

## MEDICAL PROGRESS.

***Cycling and Heart-disease.***—As the result of a considerable observation extending over a peried of eighteen years, BENJAMIN WARD RICHARDSON (*Asclepiad*, vol. xi, No. 43, p. 225) thus summarizes his conclusions as to the influence of cycling on the heart: Cycling, when carried on with moderation, may, in so far as the healthy heart is concerned, be permitted or even recommended. It is not necessary to exclude cycling in every case of heart-disease. It may even be useful in certain instances in which the action of the heart is feeble, and in which signs of fatty degeneration are found; as increased muscular exercise often improves the condition of muscle, and of no muscle more than the heart itself. As the action of cycling tells directly upon the motion of the heart, the effect it produces upon this organ is phenomenally and unexpectedly great in regard to the work it gets out of it. The ultimate effect of severe cycling is to increase the size of the heart and to render it irritable and hypersensitive to motion, the cycling acting upon it like a stimulant. The overdevelopment of the heart under the continual overaction, and extreme overaction, affects, in turn, the arterial resilience, modifies the natural blood-pressure, and favors degenerative structural change in the organs of the body generally. In persons of timid and nervous natures, "neurotics," the fear incidental to cycling, especially in crowded thoroughfares, is often creative of palpitation and disturbance of the heart, and ought to be taken into account in preventive advice. In advising patients on the subject of cycling it is often more important to consider the peripheral than the central condition of the circulation. Enfeebled or worn-out arteries, that is to say, are more endangered than the feeble heart, and, when connected with a heart that is overactive, are seats of danger. This same remark would, of course, apply to cases in which there is local or arterial injury, as in aneurism. Venous enlargement seems rather to be benefited than injured by cycling, and conditions marked by sluggish circulation through veins are often greatly relieved by the exercise. There are three sets of acts that are most injurious in cycling: (*a*) Straining to climb hills and meet head-winds. (*b*) Excessive fatigue. (*c*) The process of exciting the heart and wearing it out sooner by alcoholic stimulants, to the omission of light, frequently repeated, and judiciously selected foods.

***The Maternal and the Fetal Blood at Birth.***—As the result of a series of clinical observations, ELDER and HUTCHISON (*Edinburgh Medical Journal*, August, 1895, p. 105) have found that the blood in the newly born child is relatively richer in red corpuscles than that of the adult by from 350,000 to 500,000 per c.cm. For a short time after the birth (up to about two days) the red corpuscles seem to increase in number. This is probably due to the fact that the total volume of blood is less, from the fluid lost from the body during this time being in excess of that absorbed. Thus concentration of the blood is produced. After the second day or so the red corpuscles gradually decrease. The number of red corpuscles varies much more than in adults, probably because of greater variations in the total volume of the blood. At birth there are always present a considerable number of nucleated red corpuscles. They vary, however, in number in different cases. About the sixth month of intrauterine life the number of nucleated red cells is very much greater than at birth. They probably decrease in number during the later months of pregnancy, and altogether disappear from the blood a few days after birth. The blood of the newly born child is relatively much richer in hemoglobin than that of the adult. The mother at parturition is anemic. In any individual case the blood of the mother is considerably poorer in red corpuscles per c.mm. than that of her child, and it is still more deficient in hemoglobin. Both the blood of the mother and that of the child contain a larger number of white corpuscles than normal adult blood. The blood of the mother may be quite as rich in white corpuscles as that of the child. The blood of the child contains a distinctly larger proportion of lymphocytes and a distinctly smaller proportion of neutrophile leukocytes than the blood of the adult; the number of eosinophile cells seems to be slightly deficient. At the sixth month this excess of lymphocytes is probably even more marked than at birth; these probably decrease during the latter months of pregnancy. After parturition the number of white corpuscles in the blood of the mother (at least when she suckles her child) decreases markedly in a few days.

***Alcoholic Disease of the Heart.***—FISHER (*Bristol Medico-Chirurgical Journal*, vol. xiii, No. 48, p. 81) devotes an interesting communication to the discussion of alcoholic disease of the heart. He points out the relative frequency with which cardiac hypertrophy is found at post-mortem examination in the absence of the ordinary causes of that condition, such as valvular disease, arterial sclerosis, and granular kidney. In many of these cases investigation will disclose a history of alcoholism. Clinically, cases of this kind are likely to present shortness of breath on exercise and cyanosis, with palpitation of the heart and precordial pain. The face is often congested, and edema develops in time. The cardiac impulse is diffuse, feeble,

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and ill-defined. The area of cardiac percussion-dulness is increased, or it may be obscured by emphysema of the lungs. Auscultatory variations may also be present, such as duplication of one or other sound, and valvular murmurs may be audible. The disorder may result in sudden death. The treatment of alcoholic disease of the heart differs little from that of other forms of cardiac insufficiency, and includes rest in bed, with a withdrawal of the causative stimulant. Exceptionally, however, in an emergency, alcohol will have to be used. Some authorities, on the other hand, maintain that rest in bed should, if possible, be avoided, as it is believed that the circulation is thereby hampered rather than aided, as muscular action and comparative deep respiratory movements no longer aid in propelling the blood onward. From this point of view, also, digitalis is considered harmful, and strychnin nitrate valuable, with the addition of musk, castoreum, and valerian. In these cases also systematic bathing and exercise are considered useful.

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***Retraction of the Lower Chest Posteriorly as a Sign of Chronic Pericarditis.***—BROADBENT (*Lancet*, No. 3752, p. 200) calls attention to a hitherto unpublished physical sign in the diagnosis of chronic pericarditis. This consists in a visible retraction, synchronous with the cardiac systole, of the left back, in the region of the eleventh and twelfth ribs, with sometimes, also, similar retraction of less degree upon the right side. Four cases are reported, all of which presented a definite history of pericarditis, and three, also, other conditions suggesting an adherent pericardium. It is explained that the only means of causing the retraction referred to upon both sides seemed to be the diaphragm, which if pulled upon would have more effect upon the floating eleventh and twelfth ribs than on the other more fixed ones. In cases of large heart with adherent pericardium there is a considerable area of the ventricles closely adherent to the central tendon of the diaphragm, and the powerful contraction of the hypertrophied heart must give a decided tug to this structure. That it should affect the ribs more often on the left side would be expected, from the adhesion being mainly to the left of the middle line. The liver also, which is often large in these cases, may restrain the movement on the right.

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***Thrombosis and Rupture of the Heart in an Infant.***—EDRIDGE-GREEN (*British Medical Journal*, No. 1796, p. 1202) has reported the case of a boy, nine-and-a-half months old, who died without apparent cause. He was one of twins, and had been delicate and subject to convulsions from birth. On the day of his death he was seated on his grandmother's lap, when he was seized with a fit and died in three minutes. The fit was said to be different from those that had preceded it, and the child had appeared quite well previously. On post-mortem examination the pericardium was found distended with fluid blood, and the right ventricle presented a rupture one-third of an inch in length. This was gaping and started at about the middle of the ventricle, at its junction with the ventricular septum. On opening the right ventricle a loose, white thrombus was found in the cavity. It was one inch long, one-third of an inch wide, and one-quarter of an inch thick. Between the columnæ carneæ of the right ventricle were situated two small thrombi. The walls of the right ventricle were stretched, but appeared normal in other respects. The remainder of the heart and the other organs were normal.

—

***Facial Paralysis with Unilateral Lacrymation.***—FRANCKE (*Deutsche medicinische Wochenschrift*, 1895, No. 33, p. 532) has reported a case that lends support to the belief that a part of the nervous supply of the lacrymal gland is received through the facial nerve. The patient, a woman, was seized with vertigo that became so pronounced as to compel her to go to bed. At the same time a rumbling and roaring in the head developed, together with left-sided headache. Further, a considerable degree of impairment of hearing was present at first. Some eight days later complete paralysis of the muscles in the distribution of the left facial nerve developed and hearing was entirely lost. No derangement of function in the distribution of the fifth nerve could be discovered. The left eye was suffused with tears from defective action of the eyelids. Emotion induced lacrymation upon the right side, but not upon the left. The sense of smell was impaired so that reflex lacrymation could not be induced.

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***Paulocardia*** is the designation given by RIESMAN (*Philadelphia Polyclinic*, vol. iv, No. 36, p. 363) to the subjective sensation of intermission or stopping of the heart sometimes observed in cases of gastric neusasthenia. In some instances this phenomenon is obviously due to pressure of the distended stomach against the heart through the diaphragm. In other instances it is probably reflex, the afferent pathway being through the gastric branches of the vagus. Further, toxic agents circulating in the blood can by direct action on the proper centers or nerves give rise to the condition.

## THERAPEUTIC NOTES.

***For Acne Vulgaris.***—

℞.—Camphoræ } . āā gr. ivss–gr. vijss.
Acid. salicylic. }
Saponis medicin. . . . gr. xv.
Zinci oxidi . . . . ʒss.
Sulphur. præcip. . . . ʒijss.
Olei physeteris . . . ʒiij.—M.
Fiat unguentum.

Signe.—Apply topically at night.

BOECK.—*Monatsh. f. prakt. Derm.*, No. 5.

—

***For Whooping-cough.***—

Take—Bromoform . . . . 40 drops.
Rectified spirit . . . 4 fluidrams.
Distilled water . . . 1 fluidounce.
Syrup of tolu, sufficient to make 3 fluidounces.
Mix.

Dose: 1 fluidounce in water, every three hours.

CARPENTER.—*Phila. Polyclinic*, No. 37.

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SATURDAY, SEPTEMBER 21, 1895.


## THE REPORT OF THE PHILADELPHIA BUREAU OF HEALTH FOR 1894.

THE annual report of the Bureau of Health of the city of Philadelphia for the year 1894 has just appeared, and, like the previous reports of this important bureau, is a volume of considerable size. Of the 700 printed pages, however, nearly 300 could be dispensed with, as they contain a detailed record of interments for each month in the year, which could readily be embodied in a summary of four or five pages.

The report of the President of the Board, Dr. William H. Ford, states that while no epidemic occurred during the year there were more cases of smallpox than in any year since 1888—126 cases, with 13 deaths. Diphtheria maintained its virulence, the deathrate being considerably higher during the last three years than for any years previously. Scarlet fever, typhoid fever, and pulmonary tuberculosis show a lower deathrate from year to year. The deathrate of the city, excluding the stillborn, was 19.90 per 1000. The deathrate of children under five years of age was 7.4 per 1000 of the whole population, forming 37 per cent. of all the deaths.

The birthrate, exclusive of the stillborn, was 25.63 per 1000. The number of births registered still falls considerably below the actual number born. In 1890 it was estimated that at least 10,000 births were not recorded. Chicago reported in 1894 a birthrate of 38.7 per 1000, or 60,600 births in a population of 1,567,727. Philadelphia has 31,226 registered births in a population of 1,139,457. If the birthrate we reequal to that of Chicago, 13,000 births would remain unregistered. Of the births, 2.15 per cent. are recorded as illegitimate, but no accurate returns on this subject are attempted.

The new features introduced during the year were the insistence on either private or official disinfection of apartments in which deaths from pulmonary tuberculosis had occurred (the medical inspectors visiting all such premises); the establishment of a bacteriologic laboratory; the incineration of garbage; the collection of garbage in covered iron carts, so as to conceal odor and prevent dripping of the fluid contents; and the use of the tuberculin-test in the examination of all herds furnishing milk to the city. The amount of money expended by the Board for the year was $213,674.

In the reports of the various divisions many interesting features are presented. It is unfortunate, however, that the numerous tables contained in the report are not computed on the basis of the population. The mere statement that a certain disease caused a greater number of deaths in one year than in another does not indicate that there has been an actual increase in the rate per thousand, the increase in population often being sufficient to account for the greater number of deaths. The mortality of children under five years of age ought to be computed on the number living in that age-group.

There seems to be no decrease in child-mortality; dividing the table on page 151 of the report into four quinquennial periods, we see that the mortality of children under five years was annually from 1875 to 1879, 7.7 per 1000 of the whole population; from 1880 to 1884, 8.0 per 1000; from 1885 to 1889, 7.8 per 1000; from 1890 to 1894, 7.7 per 1000.

Pulmonary tuberculosis is returning a smaller number of deaths from year to year. According to our own computation from the figures furnished in the report, the average number of deaths annually from this cause in the period from 1880 to 1884 was 32 per 10,000 of the population; from 1885 to 1889 was 28 per 10,000; from 1890 to 1894 was 25 per 10,000.

The deaths from pneumonia and heart-disease are

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increasing in frequency, and tend to balance the decrease in such diseases as typhoid fever and tuberculosis; nor can the increased number of deaths from pneumonia be ascribed to a greater number of individuals of advanced age living who escaped death from other causes and finally succumbed to inflammation of the lungs. The number of persons dying of pneumonia between the ages of sixty and eighty years has not increased perceptibly in the last few years.

The report of Dr. Welch, of the Municipal Hospital, shows that 465 cases of diphtheria were admitted during the year, of which number 154 died (33.12 per cent.). There were 129 cases of scarlatina, with a mortality of 8.53 per cent.; and 87 cases of variola and varioloid, with a mortality of 11.49 per cent.

"All the children under five years old admitted with smallpox were unvaccinated," and the percentage of death among them was 28. Of 21 cases vaccinated in infancy, with good marks remaining, none died; of 13 cases vaccinated and showing poor scars, 2 died. Thus of the 34 vaccinated, 2 died, or 5.88 per cent.; of 44 unvaccinated, 8 died, or 18.13 per cent. Nine cases vaccinated after exposure recovered.

Dr. Taylor, in his report on sanitary inspection of the schools, makes some very pertinent remarks concerning the lack of supervision by the teachers over the health of the pupils, and recommends that principals be instructed to send all children presenting the slightest appearance of sickness to be medically examined, in order to arrest contagious diseases in their incipiency. He finds that "the schools are large factors in the spread of contagious diseases." Most of the schools are improperly ventilated; and garments are thrown into dark closets or hung around the schoolroom.

The certificates of medical men, other than the duly appointed medical inspectors, stating that the prescribed period after a contagious sickness has passed, can, according to the new ruling of the Board of Health, no longer be accepted. This period is thirty days in all cases.

The Inspector of Milk has much to complain of. First, the influence of selfish milkdealers has operated to prevent proper legislation on the subject; and second, in instances in which legislation exists, Magistrates are liable to be influenced by the political friends of the accused. If a milkman does not know that his milk is adulterated, he is not liable to the penalty. The Inspector wisely contends that "the milkman should be *required* to know that his supply of milk is free from added water, and that it contains its normal percentage of cream." About 300,000 quarts of milk are used every day in Philadelphia, and with the present number of inspectors it is possible to examine only about 1000 quarts a day, so that no efficient control can be said to exist. We understand that the inspectors only undertake investigations when suspicion has been directed against a dealer. Much difficulty is also experienced in enforcing cleanliness in city dairies, where distillery-swill and vegetable refuse are likely to be used as food.

The Inspector of Nuisances advises the more general use of public garbage-boxes constructed of steel. Such boxes should be plentifully supplied, especially in the more densely populated districts, and the people should be taught to use them, instead of using the street as a receptacle for garbage and waste paper. A few arrests on any street on which this nuisance exists would soon teach the residents a lesson in cleanliness that they seem to refuse to learn in any other way.

The small streets are being rapidly provided with better pavements, but unfortuately many of the newer alleys in the upper portion of the city are paved with Belgian block instead of with asphaltum. Brick or Belgian block paving allows the drainage to soak into the ground and weeds and slime to form upon the surface. Much is yet needed in improved pavements, and the underdrainage of all premises ought to be proceeded with as rapidly as possible; the only entrance to many court-properties is through a narrow alley, where the surface-drainage obliges one to wade through the refuse water.

Privy-wells and cesspools to the number of 2226 were abandoned during the year; but the number in use in the thickly settled districts is still great, and no abatement in the removal of these nuisances should be tolerated.

On page 64 of the report, the Coroner furnishes a table of inquests, from which it appears that 140 suicides and 31 homicides occurred during the year. The street passenger-railways disposed of 67 persons, the trolleys being responsible for 43 deaths of this number. The steam-roads killed 169 individuals. Eighty-four deaths occurred from drowning.

The Health-bureau of the city of Philadelphia is a branch of the Department of Public Safety.

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It consists of the Board of Health, composed of five members (who serve without remuneration), a health-officer and the port-physician. Its various divisions are that of Vital Statistics, managed by a chief clerk, nine assistants, and two collectors; that of Contagious Diseases, superintended by a chief medical inspector and fifteen assistants, all doctors of medicine; the Nuisance Division, with a chief and twenty-two assistants; the Division of House-drainage, with a chief and twelve assistants; that of Milk-inspection, with a chief and nine assistants; the Division of Bacteriology, with a chief and two assistants and a chemist. The Municipal Hospital and twenty-three vaccine physicians are also under the control of this department.

The Philadelphia Hospital and the district charity physicians, however, are under the supervision of the Department of Charities and Correction and have no connection with the Health-department. The Coroner's office is likewise separate and distinct. We see no good reason why the Health-bureau should not include also the City Hospital and all that pertains thereto. The Almshouse could readily be divorced from the hospital and placed under separate management, and the separation would be advantageous in more ways than one.

While the Coroner in his official capacity deals largely with legal matters, the office is in reality a medicolegal one, and it would be an advantage if it were filled by one possessing both the qualities of a jurist and those of a physician. Agitation looking to reform in this direction has for some time been going on in New York. Massachusetts in 1877 abolished the office of Coroner and has a medical examiner instead, the legal work being in the hands of the judges of the courts.

Upon the Department of Health of a large city devolve many and varied duties. The service has grown gradually to huge proportions, and the power lodged in the hands of the department is almost absolute. Buildings must be constructed in conformity with its sanitary rules; certain lines of trade must be carried on according to its directions; houses must be maintained in a specified condition, and must be repaired in accordance with its instructions; when sickness occurs the department's directions must be complied with; burials must take place in accordance with its rules; births and marriages must be recorded on its books; food for consumption must bear the stamp of its approval; even private property is under control of the health-authorities, and can be destroyed at their will. We do not in any way wish to contend that these things are not all proper. If the health of a community is to be protected and disease is to be prevented, the power to enforce necessary regulations must be properly centralized, at least until all individuals will voluntarily obey the laws. But how far is this power to extend, and who shall exercise it? If prevention of disease is the province of a board of health, shall such a board stop short of anything to attain its purpose? Instead of a merely regulating body, a sanitary police as it were, shall it not itself undertake to produce the conditions that are necessary to the maintenance of health?

To illustrate, shall it simply order the destruction of unsanitary hovels, but shall it not also secure the construction of model dwellings for the poor, as the municipality of Glasgow has done and the municipality of London contemplates doing? Shall it have its own model dairies for supplying suitable milk for children at a nominal price? Shall it operate summer sanitariums and "country-week" farms, or at least control them? Such a policy has been urged in European cities, and is not out of harmony with American institutions. The duties that some of our health-boards now assume are of a similar nature, such as bacteriologic and chemic examinations; disinfection of dwellings and personal apparel, the management of hospitals, and the manufacture of antitoxins and vaccines.

Those who see in such an extension of power an unwarranted infringement upon private rights and privileges are loudly opposed to it. On the other hand, those who are desirous of governmental control of all the means of production and distribution welcome each step in this direction.

If a State is founded for the purpose of promoting the general welfare of its citizens and their posterity, any measure that has for its purpose the prevention of disease has a reason for existence and execution.

When the great mass of people learn to recognize the need for the execution of health-laws they will practise them without compulsion, and laws will not be considered restrictive. They will feel it as much a duty to quarantine the sick of their families until the danger is past as they now consider it a duty to educate their children. Who knows but perhaps expectoration on the public highways will some day be regarded as much an offence as urinating in public is now.

If health-rules are carefully considered before

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they become operative, if the public is taken into confidence and educated to understand the aims and purposes of laws, and if physicians will consider themselves as the expounders and teachers of, and will advise obedience to, such health-ordinances, not only will the work of the Health-department be made easier, but the healthfulness of cities will also be greatly increased.

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### CONTINENCE AND HEALTH.

THE Medical Faculty of the University of Christiana, in Norway, is reported to have replied to an inquiry addressed to it in relation to continence, that "The recent declaration made by different persons that a chaste life and continence are injurious to health is, according to our view, wholly false. We know of no disease or of any weakness which can be said to be the result of a perfectly pure, chaste life."

We are perfectly aware that there are some physicians who, whatever their private doubt may be about the unwholesomeness of continence, do not hesitate to recommend to some of their patients immoral sexual indulgence. We have always suspected that they do this not because they believe in the injurious effects of continence, but rather in a spirit of compromise with vice, and from a selfish motive to preserve their prestige with a class of patients to whom immorality is more desirable than a strict, personal hygiene. It is a specious argument, which is met without opposition, that sexual gratification is a physiologic necessity. It is a prescription that popularizes the physician because it gratifies the patient. It is a dose that requires no sugar-coating for some, because the moral gustatory sense of the patient is blunted to that degree that he does not perceive the sophism that distinguishes between a law of Nature and a law of ethics.

We do not stop here to point out in detail that the laws of ethics are only the higher laws of Nature—not opposing the latter, but confirming and regulating them. "Nature" is only the universal group of phenomena, of which man's moral sense is the highest, the most complex, and the most highly differentiated phenomenon. From even the purely biologic standpoint it is easy, nay necessary, to affirm that ethics is the physiologic activity of the highest evolved product in organic nature—the human conscience. We leave this aspect of the subject, in order to discuss briefly its practical bearings, which at least appeal to the intelligence of those who persist in regarding this grave question from a lower plane.

In the first place, we may affirm emphatically that sexual immorality is the prime and persistent cause of the prevalence of venereal diseases. This statement is not weakened by the fact that venereal diseases may be acquired and transmitted innocently. This very fact, appalling in itself, is only an additional argument against the vice that primarily breeds and disseminates them. We believe that any general prophylaxis against gonorrhea and syphilis will always be counteracted by the prevalence of prostitution. If we could imagine prostitution abolished, we could imagine the prompt eradication of these scourges. Without its abolition we cannot. Those who believe that its legal control (in itself a sociologic chimera) can prevent the dissemination of infection occupy an unscientific ground, which is not assumed in reference to any other infectious disease. The first necessity of prophylaxis against pathogenic organisms is to abolish the conditions under which they thrive. The favorable conditions for gonorrhea and syphilis are prostitution. Does any rational man believe that the mucous surfaces of the urethræ and vaginæ of libertines and courtesans can be so sterilized and kept sterile as to eradicate the gonococcus? When we combat diphtheria, do we send our children to consort with patients in whom there is the slightest suspicion of an infected pharynx? Moreover, is it the function of a member of the medical profession to sterilize vaginæ (with indifferent prospects of success) in order that they may be exposed to prompt reinfection? Is this according to the best bacteriologic methods of the day?

We dwell in no Utopia. We do not expect to see prostitution abolished, and therefore we expect to have to combat the ravages of secret diseases all our professional days. Therefore we desire that no other man should dwell in any Utopia of his own making, because his Utopia, we are convinced, is only a Tartarus. From our point of view the physician who recommends sexual immorality is untrue not only to the ethics but to the science of medicine. He aids by his advice in the dissemination of the germs of disease. He is blind to the teachings of bacteriology; he is indifferent to the claims of a profession whose highest aim and endeavor are the prevention and eradication of disease.

Secondly, from this standpoint it would make no difference even though continence were somewhat

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of a trial to health—of which there is but little scientific evidence. But even if it were, the obscure neurotic and emotional disturbances that are laid at the door of continence are as nothing compared with the effects of the venereal diseases.

But is there any evidence that continence is injurious to health? In discussing this question in a dispassionate and purely scientific spirit we do not care to say dogmatically that there is none. We can safely admit that there is perhaps evidence that some strictly functional disturbances, confined largely to the psychic sphere, do occasionally manifest themselves, in persons of a certain temperament, as a result of a conscientious adherence to continence. It may even be admitted that hysteria must claim as among its causes emotional perturbations in which obscurely continence may act as a factor. But this admission in nowise changes either the ethical or the scientific considerations involved. In much graver crises the law of duty often demands the imperilling or even the sacrifice of a much larger measure of health. Dare the medical profession, which applauds the self-sacrifice of life in attendance upon pestilence, stultify itself by admitting that a man or a woman is not bound to observe the law of sexual morality lest he or she should suffer the trifling or periodic disturbances of the nervous system that wait upon continence? Are these so grave that they cannot be withstood? Is there no cure or control for them? Have not men and women withstood them successfully for years, while libertines and their posterity have decayed away under the ravages of syphilis? If physicians are to advise their patients by no higher law than the law of probabilities and expectancy of life, which of these two alternatives are they bound to offer to them?

As we said in the beginning, we discuss this question not upon the higher, but upon the lower, plane. We desire to make it clear as a purely scientific question. No physician can afford to pander to vice if for no better reason than because when he does so he ceases to be a scientist. And in one sense this is a high plane of thought, because it elevates medicine to its true position, as the beneficent source not only of healing, but of ethics.

A German physician has recently insulted his profession by recommending that sexual perverts should be hypnotized and then led by a series of obscene suggestions to indulge in normal but immoral intercourse. As the ancient Spartans made their slaves drunk in order to disgust their children, so it would seem has this German writer debauched his own patients in order to repel all decent men.

## EDITORIAL COMMENTS.

***The Longevity of Medical Men.***—Of 140 obituary notices of physicians appearing in medical journals in the six months ending July 1, 1895, in which the age of the decedents is given, we find that death occurred between the ages of

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|---|---|---|---|---|---|---|---|
| 25 | and | 30 | . . . . | in | 3 | instances. |
| 30 | " | 40 | . . . . | " | 4 | " |
| 40 | " | 50 | . . . . | " | 17 | " |
| 50 | " | 60 | . . . . | " | 19 | " |
| 60 | " | 70 | . . . . | " | 24 | " |
| 70 | " | 80 | . . . . | " | 39 | " |
| 80 | " | 90 | . . . . | " | 29 | " |
| 90 | " | 100 | . . . . | " | 5 | " |

Although this table can have no great scientific interest, as the period of time covered by the analysis is too short and the number of deaths too small to base any conclusions on, yet it seems remarkable that more than half the number should have reached the age of seventy and over. The notices were taken without selection as they appeared each week in the more important journals and are cosmopolitan in their nature.

Dr. Kortright, in an article in the *Brooklyn Medical Journal*, already referred to in these columns, gives 54.6 years as the average age at death of 450 medical men dying in New York City. In the New England States of all deaths of persons over thirty years of age only 38 per cent. occur after the seventieth year.

Of course, we realize that the foregoing list is likely to include only those who have attained some prominence in their profession, the immortal ones as it were, and fame comes chiefly to those who have had the strength to live, whereas the many who die young in the struggle are not recorded.

The nonogenarians included Lombardy, of Switzerland, who reached the age of ninety-two; Schmid, of Germany, aged ninety-five; Dufoy, of France, aged ninety-six; Ball, of England, ninety-six; and Calmeil, of France, ninety-seven. Among the octogenarians we have such names as Detmold, Baumgarten, Symes, Reich, Noeggerath, Danneberg, Ludwig, Guerin, and Parke; among septuagenarians, Goodsir, Vogt, Mundie, Vulpius, Thiersch, Verneuil, Symonds, and Lemaestre; and among sexuagenarians, Loomis, Gottstein, Dujardin-Beaumetz, Hulke, Tuke, Guillard, and Rosati.

Whether or not medical men have a shorter lease of life than other men is, after all, not of the greatest importance. "He liveth long who liveth well" is an old saying, and medical men aim to be useful, even in old age, if they are so fortunate as to attain it.

***A New Woman's Medical College.***—The first annual sessions of the Woman's Medical College of Kansas City, Missouri, will open October 15th. In the preamble of its announcement it is stated that after its first year the college intends to unite itself with the Medical College Association and have a four-year course. Why a beginning is made with a three-year course the trustees do not say, although in the same preamble the "insignia"

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of the college is stated to be "quality rather than quantity." Another quotation is the following: "The time when medical colleges consider only their large number of matriculants as their success is past."

No student will be admitted under eighteen years of age, and the candidate for graduation must be, at least, twenty-two years of age, except students of 1895–96. Attendance on lectures and clinics will be compulsory, no one being admitted to examination unless 80 per cent. of the lectures have been attended.

The school hopes to draw its students from the South and Southwest. The faculty includes both men and women.

***The Pennsylvania State Medical Examinations.***—Our attention has been called to the fact that while the examinations before the Pennsylvania State Board of Medical Examiners were held on June 18th, the licence conveying the privilege to practise medicine in the State did not reach some of the successful applicants until August 28th, thus necessitating a considerable period of uncertainty and enforced idleness. It also appears that a neat income must accrue to the examiners, for upon the basis of 240 applicants at the last examination before the board representing the Medical Society of the State of Pennsylvania, each applicant paying $25, $6000 must have been paid in fees, while but an insignificant amount would have covered the entire expense. In view of these facts, it would appear more equitable to reduce the amount of the fee, as this must come from those ill able to afford it.

## SOCIETY PROCEEDINGS.

### *MISSISSIPPI VALLEY MEDICAL ASSOCIATION.*

*Twenty-first Annual Meeting, Held in Detroit, September 3, 4, 5, and 6, 1895.*

THE Association was called to order by DR. H. O. WALKER, of Detroit, Chairman of the Committee of Arrangements.

Prayer was offered by the REV. MARCUS A. BROWNSON, of Detroit.

DR. WALKER then introduced MAYOR PINGREE, who paid an eloquent tribute to the medical profession, and extended a cordial greeting to the Association.

THE ADDRESS OF WELCOME,

on behalf of Detroit physicians, was made by DR. J. HENRY CARSTENS, of Detroit.

Dr. Walker presented the President of the Association, DR. WILLIAM N. WISHARD, of Indianapolis, who delivered the

PRESIDENTIAL ADDRESS.

He pointed out the importance and advancement of Detroit as represented by the standing and intelligence of the local physicians. He referred to the beginning of the four-years' course in medical colleges, and said the fear that the new rule would operate to the disadvantage of the smaller schools was unfounded. He urged the advisability of publishing the records, papers, and discussions in some manner to make them accessible to all members. He recommended a permanent Executive Committee, and regretted that the large number of papers necessitated the holding of two meetings at the same time. He commended the preparations for the meeting, and pledged his earnest efforts to the promotion of the profit and pleasure of the convention.

The reports of the Secretary and Treasurer were read and accepted.

The reading of papers was proceeded with, the first one being read by DR. THOMAS HUNT STUCKY, of Louisville, entitled

THE GOLD-COMBINATIONS AS ALTERATIVES.

He related that at a meeting of the Medico-Chirurgical Society of Louisville, on April 5, 1894, he had exhibited a series of cases in which preparations of gold and arsenic were employed. He was under the impression at that time that the good effect claimed was produced in three ways: (1) By stimulation of the secreting glands of the stomach; (2) by the probable alterative effect upon these secretions; and (3) that probably there was a local antiseptic influence exerted. The class of patients in which the preparations had been employed included persons afflicted mostly with pulmonary tuberculosis, nephritis in its various stages, and chronic hepatic troubles, and convalescents. It was made a rule with all these cases to withdraw all medicine except the combinations of gold and arsenic. Four or five cases thus treated were detailed. One was in a man, sixty years of age, with tuberculosis. Eight drops of "mercuric bromid of gold and arsenic" were given hypodermically every four hours for a period of two months. No deleterious results were noticed. On the contrary, the patient was decidedly better, and his physical condition, color, appetite, and bodily strength improved.

A few cases were reported out of a large number to demonstrate that the combinations of gold and arsenic act as neither of the minerals does when administered separately.

The chemic differences were pointed out between auric and sodic chlorid and auric and arsenic bromid, with reference to their therapeutic action and subsequent elimination. It was contended that the combinations spoken of enter into the circulation as gold and arsenic and expend their force and exert their influence in an alterative way upon the glandular system; that a marked alterative effect is exerted upon all scleroses (non-malignant); that they act not only as a blood-maker but as a blood-builder, increasing not only the quantity but also the quality of the corpuscles; that under their use the hemoglobin is markedly increased; that they are eliminated by the kidneys; that they produce no irritation when given either by the mouth or hypodermically.

DR. WILLIAM F. BARCLAY, of Pittsburg, read a paper entitled

LEGITIMATE PHARMACY,

which he defined as that which meets the necessities and demands of the regular medical profession and the people. The medical profession is entirely separate and distinct from pharmacy. Medicines may be divided into four classes—patented, proprietary, non-proprietary, and secret. It was maintained that there are a large number of cures, mixtures, and tonics bearing the name of their originators and deserving of consideration as proprietary preparations. Pharmacists and physicians are interdependent, but should work together. Legitimate pharmacy has called into service educated and able men, but the incompetent and dishonest have got in too,

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and cannot be too severely condemned. Pharmacists make errors, but physicians are careless, too, in writing prescriptions. Physicians should not favor particular pharmacists, and should not receive commissions from them. On the other hand, it is unworthy and unprofessional for pharmacists to prescribe drugs or medicines. Legitimate pharmacy should protect the people from the nostrum-makers. Physicians have a right to demand the highest skill and competence upon the part of the pharmacist, both for his own interests and for the good of his patients.

DR. F. E. STEWART, of Detroit, read a paper on

COD-LIVER OIL.

He pointed out the powerful stimulant action of cod-liver oil on nutrition, also demonstrating with specimens the differences in the color of oil digested from fresh livers and that prepared from putrid livers, the former being pale, golden or light-brown, according to the number of hours digested, and the latter dark-brown. The darker oils contain more extractive matter. It was held that the text-books contain many errors regarding the preparation of cod-liver oil.

DR. I. N. LOVE expressed himself as rather skeptical as to the value of cod-liver oil. He took the ground that there was danger of medical men becoming too professional, and said that that which brings relief to the patient is to be commended. He favored proprietary remedies that have come to the profession through pharmaceutic channels.

DR. D. TOD GILLIAM, of Columbus, read a paper entitled

UTERINE FIBROIDS—WHEN TO OPERATE.

He stated that the medical and electric treatment of uterine fibroids is to-day in a very unsettled state. While it cannot be denied that amelioration or even recovery has followed such lines of treatment, there has not been such a degree of uniformity in results as to inspire confidence. It was held that there is no better field for a competent observer than the study of the natural history of uterine fibroids. It will enable him to determine the true value of so-called curative agencies; will insure a more certain prognosis, and will give the proper cue to surgical interference. If out of 100 cases 90 suffering women can be restored to lives of usefulness and happiness, would it not be better to give them a chance? No surgeon is justified in performing hysterectomy or the more serious operations for uterine fibroids when the patient has not experienced sufficient trouble to make the condition a menace to her life.

DR. L. H. DUNNING, of Indianapolis, read a paper entitled

TUBERCULOUS PERITONITIS.

He considered the mode of invasion, the forms of the disease, the diagnosis and the treatment, and finally detailed a brief history of five cases. He said that tuberculous peritonitis with effusion is now universally considered a surgical disease. Even in the acute suppurative cases abdominal section yields a sufficient number of successes to render its employment imperative. Senn excludes all forms of the disease from surgical treatment except the exudative form. Manclaire names as the chief contraindications to surgical treatment the generalization of the lesion and the existence of profound systemic infection. Linder analyzes the results in 205 operations, with a mortality of 7.5 per cent. The deaths resulting in most of these cases were from collapse. When the tubes and ovaries are involved they should be extirpated. Dunning's experience in two cases leads him to the belief that the use of silk ligatures in tying the pedicle should, if possible, be avoided when it is necessary to remove the uterine appendages. A case was reported in a woman, aged fifty-six years, who came under observation for the extirpation of a fibroid tumor of the uterus. She had passed the menopause five years previously, but the tumor had gradually increased in size, at the time of examination reaching to the level of the umbilicus. There was a small amount of fluid in the abdomen, on opening which probably a quart of clear, straw-colored fluid ran out. The peritoneum and intestines were studded with innumerable small grayish deposits of the size of a millet-seed. Similar deposits thickly studded the serous covering of the tumor. The intestines were agglutinated, but were not adherent to the tumor. After removal of the tumor by supravaginal hysterectomy and ventrofixation of the stump the abdominal cavity was irrigated, and then, leaving the drainage-tube just behind the stump, the abdominal incision was closed. Recovery ensued. In a second case a diagnosis of ovarian tumor had been made, and examination revealed an encysted accumulation of fluid in the abdomen. The uterus was fixed, and an immovable mass was outlined in the pelvis upon the right side, which was believed to be a small ovarian tumor surrounded by inflammatory exudate. An exploratory incision was made, and three gallons of dark fluid evacuated from the abdominal cavity. A small tumor was felt in the pelvic cavity. The incision was enlarged, the tumor nucleated, and the pedicle tied off, together with the Fallopian tube. The left tube and ovary were likewise extirpated. On exposing the abdominal and pelvic cavities to view, it was seen that the viscera were thickly studded with grayish deposits. Microscopic examination demonstrated the presence of tubercle-bacilli. The patient was in good health eleven months after the operation. Two of the five cases reported terminated fatally.

DR. GILLIAM expressed the belief that when the ovaries and tubes are tuberculous it is better to remove the uterus too.

DR. J. FRANK, of Chicago, asked whether any of the members, who had operated for tuberculosis of the peritoneum, had noticed a recurrence, or how long the patient was immune from further attack.

DR. HUMISTON, of Cleveland, reported two cases upon which he had operated successfully.

DR. R. S. SUTTON, of Pittsburg, reported that he had seen a good many cases of tuberculous peritonitis, upon several of which he had operated successfully. Until within a year he had been in the habit of washing out the cavity with hot water, but now he pays no attention to this, simply opening the abdomen and cleaning out everything. He is convinced that while hot water does no harm, it does no good, in that it has no influence upon the disease. He believes in removing, as far as possible, all diseased organs.

DR. HENRY O. MARCY, of Boston, stated that he had operated in 1887 for the first time on a case of tuberculous peritonitis, the patient making an easy recovery.

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He had operated several times since then for the same condition with excellent results.

DR. A. H. CORDIER, of Kansas City, called attention to the fact that Mr. Wells, as early as 1862, operated for tuberculous peritonitis, simply incising the abdomen and draining, thus curing his cases. He thinks that drainage is the principal factor that brings about a cure in this disease, but how is not definitely settled. He said the theory had been advanced that it is due to the admission of saprophytes into the peritoneal cavity.

DR. BAYARD HOLMES, of Chicago, related an interesting case of adhesive peritonitis cured by operation.

DR. DUNNING, in closing, said that Linder's observations were the most complete of any, and he found very little tendency to recurrence of the disease when it was primary and of the adhesive form; but when the disease was secondary and of the adhesive form there was a strong tendency to recurrence. His own experience had not been sufficiently extensive to furnish reliable data in this regard.

DR. BAYARD HOLMES, of Chicago, read a paper entitled

HYSTERECTOMY FOR PUERPERAL SEPSIS. WHEN SHALL IT BE PERFORMED? WITH A REPORT OF FOUR CASES.

The paper included (1) a report of four cases of puerperal sepsis treated by four different methods. (2) The pathology of puerperal sepsis in various stages. (3) Curettement in the hands of its advocates. (4) Puerperal sepsis as a cause of death in Chicago, New York, Brooklyn, and in the Charité Hospital at Berlin, with an abstract of 79 deaths from puerperal sepsis in 6635 cases.

The first case was in a multipara, twenty-six years of age, of Irish extraction, having a history of tuberculosis of the lungs, who was confined under unfavorable circumstances, with retained placenta, post-partum hemorrhage, delivery without an anesthetic with the hand of a physician, arrest of hemorrhage, gradual sepsis, failure of curettement, and death seven weeks after confinement.

The second case occurred in a woman, thirty years of age, who had had a normal confinement, with sepsis of a mild character appearing upon the fourth day, and gradually increasing until six weeks after delivery. The temperature was high, the pulse rapid, and symptoms of peritonitis with obstruction of the bowels developed. Celiotomy was performed, the right broad ligament, tube, and ovary removed, and drainage through the vagina provided for. Death occurred after eight days, without peritonitis, from phlebitis and pulmonary embolism.

The third case was in a multipara with a history of gonorrhea; an abortion followed pelvic inflammation, with peritonitis and obstruction three weeks after delivery. Both tubes were removed and abdominal drainage provided for. Death took place after ten days, without peritonitis, from phlebitis and pulmonary embolism.

The fourth case occurred in a multipara, thirty-two years of age, delivered by a midwife, with a bad history of puerperal infection, and rapid onset of a mild infection, without curettement. Obstruction of the bowels resulted with vomiting six weeks after delivery, and evidences of peritoneal effusion. Celiotomy was performed and the uterus and its adnexa removed; abdominal drainage was provided for and recovery ensued. The uterus and its appendages were carefully examined microscopically. There was evidence of necrotic endometritis, suppurative metritis, suppurative endometritis, suppurative lymphangitis in both tubes, with abscess of the ovarian ligament upon the right side and adjacent peritonitis. The bloodvessels throughout the broad ligaments were occluded, indicating a progressive infective thrombosis. The uterine tissue was filled with pus-cells occupying the perivascular lymph-spaces, with occasional obliteration of large bloodvessels. A great number of *Mastzellen* were found throughout the infected tissues. It was held that the process of puerperal infection in this case was through infective thrombosis and suppurative lymphangitis, and that the removal of both tubes and drainage would have been ineffectual.

In the city of Chicago during the years from 1881 to 1894, inclusive, there were 2127 deaths from puerperal fever. In New York during six years ending May 31, 1880, there were 250,000 deaths, of which one-sixth were in females; 2236 of these deaths were due to the pregnant state. Of these, 1250 were due to puerperal infection. In Brooklyn, with 112,000 deaths during the same period, 53,000 were in females, and of these 867 died in the puerperal state, 462 from puerperal sepsis.

Of 7600 cases of labor in the hands of one of the advocates of curettement, 101 were treated by repeated curettement and irrigation. Of these, 96 recovered, and 5 died.

An abstract of the histories of these five cases was presented, showing that there was every reason to believe that after curettement had failed hysterectomy would have proved efficient in saving the patients.

A series of 6635 cases of confinement occurring in the Charité Hospital in Berlin during four successive years were then analyzed. Seventy-nine deaths from all causes occurred. Of these deaths 33 resulted from puerperal sepsis. A short epitome of the history of each case showed that only three out of these 33 cases were of such a character as to give rise to the suspicion that they might not have been saved by hysterectomy.

The following conclusions were announced: (1) Puerperal sepsis has its origin in the endometrium, and usually travels by the lymph-channels or by thrombosed bloodvessels and the lymph-channels together. (2) It still causes almost one-half of the deaths that occur in the puerperal state. (3) Curetting is ineffectual in many cases of puerperal sepsis. (4) The removal of an infected broad ligament and the drainage of a pelvic abscess or peritonitis is often ineffectual. (5) Hysterectomy should be performed, therefore, in such cases of puerperal infection as do not yield to uterine curetting and irrigation. (6) Hysterectomy should be performed whenever peritonitis is present in the course of puerperal fever. (7) Hysterectomy should be performed in cases of puerperal mania in which there is a history of endometritis without uremia. (8) Hysterectomy may not be helpful in the course of diphtheric vaginitis and endometritis. (9) Hysterectomy may not be helpful in cases of rapid early infection. (10) It may not be useful in cases of septic phlebitis reaching outside the pelvis.

DR. WM. H. HUMISTON read a paper entitled

A METHOD OF PREVENTING THIRST FOLLOWING CELIOTOMY.

He recommended that the patient should have the

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usual preparation for celiotomy; *i. e.*, diet, daily baths, cathartics, etc. For three days prior to operation she should drink one pint of hot water an hour before each meal and on retiring, thus drinking two quarts of water every twenty-four hours, the last pint to be taken three hours before the time set for operating. The water is to be continued on the day previous to the operation, while the patient is restricted to a limited amount of liquid nourishment and the bowels are being unloaded. In this way is restored to the system the large loss of fluid occasioned by the free catharsis, and the patient will pass through the trying ordeal of the first thirty-six hours after the operation in comparative comfort, with no thirst, a moist tongue, and an active renal function, represented by an excretion of from twenty-eight to fifty fluidounces of urine during the first twenty-four hours, catheterization being seldom necessary. This is in keeping with the full character of the pulse noted. This plan has been recently pursued in twelve cases. In eleven chloroform was administered; in one ether. The time required to complete the operation varied from ten to fifty-five minutes. Whether the case was one of sclerotic ovaries or a pus-case with universal adhesion of all the pelvic structures, the result has been uniform and highly satisfactory, thirst being allayed and excretion stimulated.

DR. MILES F. PORTER, of Fort Wayne, Ind., read a paper entitled

CELIOTOMY IN GENERAL SUPPURATIVE PERITONITIS, WITH THE REPORT OF A CASE.

He quoted Grandin, who says regarding general puerperal peritonitis: "The women die, no matter what the form of treatment employed." Dr. Baldy says: "To my knowledge there has never been reported an undoubted case of general purulent peritonitis from any cause whatever, in which an abdominal section or any other line of treatment has succeeded in saving the patient's life." That the mortality of general septic peritonitis is large all will agree, but that it is always fatal is certainly not true. Dr. Porter then reported a successful case, and closed by saying that his object in writing the paper was to assist in arousing a sentiment against the too prevalent idea that in general septic peritonitis death is inevitable, and to encourage in these cases prompt operative interference.

DR. A. H. CORDIER, of Kansas City, Mo., read a paper on

PERITONEAL IRRIGATION AND DRAINAGE,

in which he said that the latest works on abdominal and pelvic surgery contain, like the older text-books, very short and misleading articles on the indications for peritoneal irrigation and drainage, and still less explicit directions how to use these agents intelligently and correctly. This diversity of opinion leaves the inexperienced beginner in a position of perplexity and doubt as to the special course he is to pursue in his early work. The same principles hold good in draining the peritoneal cavity that are applicable to other parts of the body. No surgeon, with all the antiseptic precautions possible to be used in opening a diffuse abscess of the thigh or other part of the body, would think of such a thing as at once closing the wound hermetically, leaving many broken-down shreds of diseased tissue in the abscess-cavity. He might have irrigated the cavity thoroughly with a 1:1000 mercuric-chlorid solution, yet he would not feel it safe to close the wound until after he had made counter-openings and introduced a drainage-tube, this being as nearly ideal surgery as it is possible to obtain in these cases. Freshly boiled, distilled, or filtered water, cooled to between 102° and 110° F., should be used in irrigating.

The following deductions were presented: (1) Drainage is a life-saving process when properly used. (2) To use it is not an admission on the part of the surgeon that his work during the operation is imperfect. (3) The use of the tube alone does not produce or leave any condition that favors the development of hernia. (4) The omentum and other structures do not become entangled in the openings in the tube. (5) A small-sized flint-glass tube, with small openings and an open end, should always be selected for pelvic drainage. (6) The tube does not give rise to a fecal fistula. (7) The tube should be used when doubt exists as to the absence or presence of indications for drainage. (8) To depend upon microscopic findings as to whether a given case should or should not be drained is seemingly scientific, but it is neither necessary nor practicable. (9) Gauze drains should rarely be used and should always be supplemented by a glass drain. (10) There is no danger of infecting the patient through a tube if the attendant is properly instructed.

DR. J. HENRY CARSTENS, of Detroit, read a paper entitled

THREE CASES OF HYSTERECTOMY FOLLOWING CELIOTOMY FOR PUS-TUBES.

The following summary was presented:

1. In the light of present experience in cases of bilateral pus-tubes it seeems that a more perfect and complete operation can be performed by abdominal section, with less danger of injury to the bladder and intestines and with a lower mortality and better ultimate results.

2. In certain cases a better immediate result is obtained by vaginal hysterectomy and drainage, but these cases frequently require a second operation to remove the ovarian tissue and parts of the tube (which cannot be removed at first in many cases) before a perfect ultimate cure is established.

3. When the sympathetic and other nerves are affected the cause is not in the uterus, ovaries, or tubes alone, but in part in each. It cannot be stated which organ is at the bottom of the trouble. Sometimes it may be only one, sometimes the other, sometimes two or all three.

4. In many cases presenting marked nervous symptoms the best results are obtained only after complete removal of every particle of the generative organs—that is, uterus, tubes, and ovaries, be this accomplished at one, two, or three operations, through the vagina or by abdominal section.

DR. R. S. SUTTON, of Pittsburg, favored abdominal section for pus-tubes. He maintained first and foremost that a uterus deprived of its appendages is of no use; second, that if left it is an organ which is liable to tuberculosis, gonorrhea, syphilis, nasty discharges, adhesions, etc. When it is decided to remove the appendages, the uterus also should be taken out.

DR. GILLIAM, of Columbus, argued against the removal of the uterus with the appendages in order to

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save life, the objection being that shortening of the vagina resulted.

DR. B. M. RICKETTS, of Cincinnati, believes total extirpation will be relegated to oblivion. The dangers are cystocele, hernia, increased danger of prolonging the operation, and shortening of the vagina.

DR. HENRY O. MARCY, of Boston, favored retaining the cervix when it is healthy, and pointed out the reasons why it should not be removed. It helps materially in acting as a support to the vault of the vagina.

DR. BAYARD HOLMES, of Chicago, in discussing Dr. Cordier's paper, said that drainage is a sort of vicarious redemption for poor surgery. Whenever it is impossible to make a wound clean we must drain, and sometimes we drain when the wound is clean, but we are unable to arrest the hemorrhage. He could conceive of no other indication for drainage, whether in the abdomen, the brain, or any other part of the body, than failure to meet the one great indication of wound-treatment—to keep the wound clean.

(To be continued.)

## NEWS ITEMS.

***A Malpractice-suit.***—A malpractice-suit recently decided in Milwaukee, Wis., is of interest in several particulars. The trouble grew out of the accidental leaving of a rubber drainage-tube in the pleural cavity. A physician, the defendant in the case, was treating a young man, aged sixteen or seventeen years, for empyema. An operation had been performed—a resection of one rib—and drainage provided for by means of two properly placed tubes; these were secured in position by two silk stitches, each stitch passing through a tube and the skin. The wound discharged freely for several days. Upon one occasion in dressing the wound, the doctor, having gathered up the soiled gauze and thrown it into the stove, noticed that one of the tubes was missing. The dressing had been removed in such a way as to lead him to think that the tube might possibly have been thrown into the stove along with the soiled dressings. Examination with probes and forceps failed to locate the tube in the empyemic cavity. The gauze was burning or burned, and it was difficult to decide positively where the missing tube was. Another complicating circumstance was the fact that on the day previous to this the dressing had been changed by the mother of the patient and in the absence of the doctor. Under these circumstances it was not deemed best to enlarge the wound or make other incisions to look for a tube that might have been thrown into the fire or otherwise lost outside of the boy's chest. The wound healed in about the usual time, and convalescence seemed fairly established. Some months later, however, there was a slight purulent discharge through a fistulous opening in the wound, and the boy was told that a second operation would probably be necessary.

The patient then consulted a second physician, by whom he was sent to a hospital and operated upon. Resection of three or four ribs was deemed necessary, and in the discharge thus liberated was found the missing drainage-tube. The patient recovered and suit was then brought against the first physician for $20,000, claiming damages for long illness and permanent deformity.

The case was tried three times. In the first trial the jury did not agree; in the second the plaintiff was given a verdict for $2000; in the third the judge threw the case out on the ground that the plaintiff had not shown in the trial that his illness and disability were due to lack of reasonable skill and care on the part of his first physician.

This final outcome of the case, although not precluding the possibility of further litigation, meets with the very general approval of the local profession.

***Cholera in Japan.***—From the "Abstract of Sanitary Reports" of September 6, 1895, we learn that cholera has been rather prevalent in Japan and Korea. From July 20th to August 2d, in the district of Hiogo, 269 cases are reported, with 212 deaths; from July 1st to 18th, in the district of Osaka, 805 cases, with 730 deaths. Up to July 19th of this year 7901 cases have occurred, with 4804 deaths. The last epidemic in Japan happened in 1890, and lasted until 1892; in the two years over 42,000 deaths occurred from cholera.

A table, prepared by one of the secretaries of a provincial governor, shows that cholera first appeared in Japan in about the year 1822, again in 1858, and in 1877 and 1879 severe epidemics occurred; every three or four years since then the disease has assumed an epidemic character, the worst year being that of 1886, when 108,409 deaths were attributed to this cause.

In every year since 1877, even when no epidemic prevailed, a considerable number of cases have occurred, so that Japan can be said to be a cholera-center—though, of course, to a less limited extent than is India. It is interesting to note that in Japan the bodies of persons dying of cholera are cremated

***Subscriptions to the Index Medicus.***—The Philadelphia County Medical Society has subscribed $50 for two copies of the *Index Medicus;* and the Philadelphia Pathological Society $25 for one copy.

We are informed that the subscription credited in THE NEWS of August to the Quincy Public Library is in reality that of the Adams County Medical Society, of Quincy, Ill., its copy being placed in the public library for safekeeping and for the convenience of the local profession.

### BOOKS AND PAMPHLETS RECEIVED.

Circular Insanity. Report of Three Cases. By William F. Drewry, M.D. Reprinted from the Journal of Nervous and Mental Disease, 1895.

Fourth Annual Report of the State Board of Medical Examiners of New Jersey, 1894. Trenton, N. J.: The John L. Murphy Publishing Co., Printers, 1894.

Bermuta del Hospital "San Agustin," Replica de la Comision del Consejo Departamental de Hijiene de Valparaiso, al voto especial de Señor Intendente, don Osvaldo Renjefo. Valparaiso: Imprenta y Litografia Central, 1894.

Documentos Referentes al Existente y al Proyectado Hospital San Agustin. Valparaiso: Imprenta y Litograf a Central Calle Coronel Urriola (Antes Almendro), 1895.

El Nuevo Hospital de San Agustin y los Seudo-Hijienistas por el Doctor Luis Asta-Buruaga. Valparaiso: Imprenta y Litografia Central, 1894.

Aseptic Prophylaxis of Asiatic Cholera: Arsenization. By Reginald Barkley Leach, M.D. Pamphlet. Paris, Texas, 1895.

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# THE MEDICAL NEWS.

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## ORIGINAL ARTICLES.

### ON SOME CONDITIONS AFFECTING THE BEHAVIOR OF THE TYPHOID-BACILLUS IN WATER.

I.


BY EDWIN O. JORDAN, PH.D.,
ASSISTANT PROFESSOR IN THE UNIVERSITY OF CHICAGO.


IT is now generally admitted that drinking-water is sometimes, perhaps usually, the vehicle of infection in typhoid fever. The exact conditions that befriend or antagonize the specific germ in water are therefore a matter of considerable importance, and have been made the object of study by many investigators. These studies, however, have led in many cases to results so conflicting, and have been based in general on methods and material so diverse, that the chief outcome has been confusion. A valuable summary of many of the most important experimental studies upon the vitality of the typhoid-bacillus in water is given by P. F. Frankland in the first report to the Water Research Committee of the Royal Society.[1] The existence of this tabulated statement obviates the necessity of any extended account of the literature, and I shall here refer only to those papers bearing more or less directly upon the points I wish to consider.

It is essential at the outset to emphasize the necessity of a thoroughgoing examination of the specific germ used in all experiments of this kind. I have elsewhere indicated[2] the special difficulties that environ the identification of the typhoid-fever bacillus, difficulties that make it imperative to record the source, age, and character of the culture used. Additional reasons for rigorous precaution in this particular will appear presently.

The culture of the typhoid-bacillus of which I have made use was obtained on November 26, 1893, from the fresh spleen of an individual who had died of a typical attack of typhoid fever. The bacillus was obtained in pure culture from different parts of the spleen. Parallel studies of this bacillus and of a culture of the *B. coli communis* freshly isolated from normal feces, together with several "varieties" of the colon-bacillus, gave assurance that the typical typhoid-organism had been isolated. Microscopic examination showed a short, stout bacillus, with rounded ends and exhibiting active movement. It did not stain by Gram's method. Flagella were found distributed over the body of the cell, but the considerable variation in their number and size made it impossible for me to detect any fundamental difference from the flagella borne by the colon-bacillus. On gelatin plates the characteristic iridescent, irregularly notched expansion was produced; upon potato a moist, almost invisible pellicle was formed; milk was rendered slightly acid, but was not coagulated even after prolonged growth; in ordinary peptone-broth an abundant multiplication occurred, but there was no formation of indol; in peptone-broth to which formalin had been added (1:7000)[1] growth was inhibited. *No gas was produced in glucose-agar or in glucose-peptone-bouillon.*[2] On these grounds I was able to consider the organism I had isolated as the true typhoid-bacillus.

*Methods.* Before proceeding to compare the behavior of this organism with that of the colon-bacillus I must describe somewhat in detail my method of inoculation. It is necessary to dwell upon the manner in which the bacilli are introduced into the water, as there has been the greatest lack of uniformity in this respect, and as the importation of organic matter from the culture-media along with the bacilli has undoubtedly proved a fruitful source of error. Neglect of proper methods in this particular seriously vitiates, for example, the work of Meade Bolton,[3] De Giaxa,[4] Heraeus,[5] Straus and Dubarry,[6] Wolffhügel and Riedel,[7] and others.

The method of inoculation in my own experiments has been as follows: The typhoid-bacillus was always transferred (unless otherwise stated) from a 24-to-48-hour-old agar tube-culture grown at 37.5° C. Two or three needle-loops were re-

[1] Proc. Roy. Soc., July 4, 1892. This summary, with additions and emendations, appears also in Micro-organisms in Water, by P. F. and G. C. Frankland, London, 1894.

[2] Journal of the American Medical Association, Dec. 22, 1894.

[1] Schild: Centralblatt für Bakteriologie, 1893, xiv, p. 717.

[2] The gas-test applied by Frankland ("The Behavior of the Typhoid-Bacillus and of the Bacillus Coli Communis in Potable Water," Proc. Roy. Soc., vol. 56), does not appear to me wholly satisfactory, owing to the fact pointed out by Smith ("The Fermentation-Tube," Wilder Quarter-Century Book, 1893) that all samples of beef-broth do not contain glucose. The use of ordinary melted gelatin-peptone, which Frankland recommends, could not always be relied upon for distinguishing between the typhoid-bacillus and the B. coli communis.

[3] Zeitschrift für Hygiene, 1886, i.

[4] Id., 1889, vi.

[5] Id., 1886, i.

[6] Archives de Méd. Expt., 1889, p. 1.

[7] Arbeiten aus d. kaiserlichen Gesundheitsamte, 1886, i.


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moved from the slanting surface of the agar-culture, great care being taken to carry as little as possible of the nutrient substratum along with the bacilli. A young culture is, in this respect, to be preferred to one that has grown for a longer time, as fewer dead bacilli are transferred along with the living ones. These loopfuls of bacilli were introduced into 50 c.cm. of sterile distilled water in a small Erlenmeyer flask, and the flask was shaken for several minutes in order to bring about thorough separation of the individual germs. One cubic centimeter of this inoculation-water was then added to a liter-flask containing the water in which it was desired to test the vitality. In order to determine how far this procedure introduces a quantity of nutrient substance sufficient to affect the longevity of the bacilli the following experiment was carried out: Three flasks, each containing exactly 1000 c.cm. of water drawn from the laboratory-tap, were sterilized in the steam-bath in the usual manner. To Flask A was added 1 c.cm. of inoculation-water prepared in the manner described and containing 3900 typhoid-bacilli. To Flask B were added 2 c.cm. of the same inoculation-water. To Flask C was added 1 c.cm. of inoculation-water; this flask was then sterilized by heat, cooled in running water as quickly as possible, and inoculated with 1 c.cm. precisely as Flask A.

| | Flask A. (1 c.c.m.) | Flask B. (2 c.cm.) | Flask C. (1 c.cm.) Sterilized inoculation-water + 1 c.cm. |
|---|---|---|---|
| Immediately after inoculation. | 9000 | 18,000 | 9000 |
| After 1 day | 8415 | 17,325 | 9405 |
| " 4 days | 7390 | 12,870 | 8910 |
| " 7 " | 5775 | 9,936 | 6930 |
| " 11 " | 3905 | 7,260 | 3465 |
| " 17 " | 3045 | 7,205 | 2530 |
| " 26 " | 1485 | 2,805 | 1705 |
| " 33 " | 935 | 1,210 | 825 |
| " 40 " | 825 | 930 | 1045 |
| " 48 " | 200 | 84 | 142 |
| " 62 " | 81 | 9 | 2 |
| " 83 " | 5 | 5 | 0 |
| " 103 " | 0 | 0 | 0 |

A similar experiment gave a confirmatory result:

| | Flask A'. (1 c.cm.) | Flask B'. (2 c.cm.) | Flask C.' (1 c.cm.) Sterilized inoculation-water + 1 c.cm. |
|---|---|---|---|
| Immediately after inoculation | 3900 | 8000 | 3900 |
| After 4 days | 1870 | 3190 | 1815 |
| " 20 " | 58 | 113 | 42 |
| " 41 " | 6 | 4 | 9 |
| " 55 " | 2 | 0 | 3 |
| " 75 " | 0 | 0 | 0 |

These experiments show that the amount of food-material introduced by the method of inoculation that I have employed is not large enough to affect perceptibly the longevity of the bacilli.

These experiments also indicate that within certain limits the number of bacilli introduced into the water plays no great part in increasing the total longevity. Frankland[1] suggests that among a large number of bacteria taken from a given source there may be some individuals capable of resisting a particular adverse influence, whereas with a smaller number there might not be any such individuals. While this is conceivably possible, my own results do not lend unqualified support to the view. I have found, for example, that after from 50 to 60 days, in such an experiment as I have described (*cf.*, *e. g.*, Flasks A and B after 40 days), the numbers are substantially the same when the initial number was three times as great in one case as in the other (6000 and 18,000). If it were attempted to increase the disparity of numbers to a greater extent than this, I think some risk would be run of introducing sufficient nutrient medium to complicate the experiment. There is at hand, moreover, a plausible explanation for the *apparent* influence of number in certain experiments recorded by other investigators. The number of living bacilli taken up by the loop from a 48-hour culture of freshly isolated typhoid-bacilli is for some reason larger, often very much larger, than the number obtained in a similar way from a 48-hour culture of typhoid-bacilli that has been under artificial cultivation for some months. There is here, therefore, a concurrence of two factors, namely, large numbers and short exposure to the influence of artificial cultivation. I believe, for reasons that I shall bring forward presently, that this last factor is of great importance. Large numbers of bacilli, then, are usually introduced from the very typhoid-culture that possesses great vitality, whereas when long cultivation has rendered the bacilli less able to survive in water smaller numbers are likely to be introduced. This fact, I think, is sufficient to explain the apparent connection between numbers and longevity that some experimenters believe to exist. In those cases in which very large numbers are dealt with (*e. g.*, over 100,000 per c.cm.) the influence of food-substance obscures the whole course of events, and inevitably leads to discordant results.

That the length of time the bacilli from a given culture are able to live in water is dependent on the length of time during which the culture has been under cultivation we have the result of the following experiment as evidence: A few days after I had isolated the typhoid-culture already mentioned, the bacilli were introduced into sterilized tap-water (Lake Michigan); in this instance living bacilli were found to be present after 93 days. From that time onward for thirteen months this particular typhoid-stock was under observation, and bacilli from it were introduced into sterile Lake Michigan

[1] Proc. Royal Society, vol. 56, p. 172.

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water at frequent intervals. Care was taken by frequent transfers (agar-tubes) to maintain the vitality of the stock, as far as might be, unimpaired. For two or three months no very noticeable change was observed; but after that time the vitality of the bacilli in water began to wane. Through the whole series of thirteen months a fairly steady decline went on. In the last trial I have made the bacilli lived but 12 days. Intermediate periods were 83 days, 55 days, 41 days, 22 days, etc., the diminished vitality in each case corresponding with the time that had elapsed since the first isolation of the typhoid-stock. We cannot, therefore, if this culture be regarded as typical, escape the conclusion that *the age of the stock-culture employed in experiments upon longevity of the bacilli in water is a factor of prime importance.*

The water that was used in the experiments already described, as well as in those to follow, is drawn from Lake Michigan through the Sixty-eighth Street Tunnel, which supplies the southern part of the city of Chicago. The average composition for the summer and early autumn of 1893 was as follows:[1]

| Parts per 100,000. | | | Average. |
|---|---|---|---|
| Total solids | 14.6 | to 18.6 | 15.7 |
| Loss on ignition | 3.0 | " 3.7 | 3.4 |
| Chlorin | 0.21 | " 0.31 | 0.26 |
| Oxygen consumed | 0.07 | " 0.10 | 0.08 |
| N as ammonia (albuminoid) | 0.0090 | " 0.0127 | 0.0112 |
| N as ammonia (free) | 0.0011 | " 0.0039 | 0.0021 |
| N as nitrites | 0.0001 | " 0.0009 | 0.0003 |
| N as nitrates | 0.0030 | " 0.0070 | 0.0048 |

The composition of the water is subject to this not inconsiderable fluctuation, because the sewage that enters the lake is liable to vary in quality and quantity, and is more or less unevenly distributed by the currents and winds. I have not been able, however, to discover what influence, if any, these daily and weekly variations in the composition of the water have upon the life of bacteria introduced. The multiplicity of factors involved renders such a task almost hopeless.

All experiments have been conducted in the dark; the flasks have been kept at the ordinary room-temperature; and, in order to insure uniformity of conditions in each experiment, the flasks have been always placed close together in the dark closet. Through the winter months it has been found possible to keep the temperature fairly constant, from 18° to 21° C., but in summer the temperature of the dark closet has risen on some occasions to 25° or 26° C., and I have reason to suspect that this range of seven or eight degrees is sufficient to lead to disparate results. I have, consequently, included in this paper only such experiments as were carried out under similar temperature-conditions, deferring a discussion of special temperature-influence to a second paper. In all cases, except when very high numbers were present (see Flasks D and E), one cubic centimeter of the infected water was used for plating.

*Steam-sterilized lake-water.* Proceeding now to a consideration of the results obtained with the typhoid-culture already described, we may first take up the case of steam-sterilized surface-water. Waters of this character have hitherto been the subject of the greater part of the experiments undertaken, but whether because of inaccurate and non-comparable methods, or because of diversity in the composition of the waters employed by different investigators, the results show a singular lack of concurrence. The longest duration of vitality observed by Hochstetter[1] in sterilized Berlin tap-water was seven days, and Mattei and Stagnitta[2] report a longevity of only four days, while, on the other hand, Straus and Dubarry[3] found that the typhoid-bacillus lived eighty-one days in the sterilized water of the polluted Ourcq, and Frankland[4] records a duration of life of "upward of seventy-six[5] days in steam-sterilized Thames water. Between these widely separated extremes many other periods of longevity in water have been recorded, but it is the extremes that concern us most.

The greatest longevity shown by the typhoid-culture with which I have worked was manifested in one of the early experiments soon after isolation, and extended over a period of ninety-three days.

| | |
|---|---|
| Immediately after inoculation | 6435 |
| After 28 hours | 4840 |
| " 3 days | 5390 |
| " 10 " | 4136 |
| " 26 " | 3800 |
| " 50 " | 1165 |
| " 77 " | 49 |
| " 90 " | 15 |
| " 93 " | 16 |
| " 110 " | 0 |

Succeeding trials showed, as I have already stated, a progressive decline of vitality. To take instances in which the initial numbers were low:

| | 4 months after isolation. | 6 months after isolation. | 13 months after isolation. |
|---|---|---|---|
| Initial number | 800 | 1540 | 1815 |
| After 7 days | 660 | 935 | 1320 |
| " 10 " | 660 | 364 | 78 (12 days) |
| " 20 " | 288 | 18 | 0 |

There is, moreover, considerable variation in the results of experiments made with exactly similar

[1] Allen Hazen: Engineering News, March 29, 1894.

[1] Arbeiten aus dem kaiserlichen Gesundsheitsamte, 1887, ii.

[2] Annali dell' Instituts d'Igiene Speriment di Roma, 1889. I have not seen this paper, and only quote from Frankland's summary.

[3] Arch. de Méd. Expt., 1889.

[4] Proceedings Royal Society, 1894, vol. 56.

[5] Inspection of the tables of dates and longevity given by Frankland, on pp. 330 and 331 of his work, suggests a suspicion that the influence of the age of the culture may be traced in his experiments also.

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numbers under similar conditions. (See, *e. g.*, p. 338, Flasks A and B.) This variation shows itself for the most part toward the end of the experiment in the more persistent vitality of a few individuals, and may cause so large a difference in the "period of longevity" as three weeks. A like variation, due without doubt to the variable hardiness of individual bacilli, has been observed by other experimenters. This individual difference shows itself at its true value in the numerical tables, and it is noteworthy that the general course of the diminution of numbers is not altered, as it plainly is altered in the cases just tabulated, in which the age of the culture has modified the general vitality.

The behavior of the *Bacillus coli communis* in the steam-sterilized tap-water is in contrast to the behavior of the typhoid-bacillus. A culture of the *B. coli communis* freshly isolated from normal human feces, when introduced into a flask of water under the conditions just described, soon undergoes considerable multiplication. The following experiments, conducted at the same time, and parallel with the ninety-three-day experiment with the typhoid-bacillus already recorded, illustrate this point:

| | D. | E. |
|---|---|---|
| Immediately after inoculation | 1,925 B. coli. | 1,925 B. coli.<br>6,435 B. typhi. |
| After 28 hours | 2,035 | 6,160 |
| " 3 days | 1,815 | 6,215 |
| " 10 " | 77,000[1] | 299,750[1] |
| " 16 " | 93,500[1] | 209,000[1] |
| " 22 " | 66,000[1] | 200,750[1] |
| " 26 " | 57,550[1] | |
| " 50 " | 22,000[1] | |
| " 90 " | 5,379 | 25,344[1] |
| " 127 " | 7,260 | |
| " 184 " | 148 | 660 |
| " 262 " | 5 | 0 |

Therefore in ability not only to multiply but also to maintain vitality in water, *B. coli communis* differs from the typhoid-bacillus. Frankland[2] has recorded an experiment with steam-sterilized Thames water, similar to D, and giving a similar result; but the initial number of colon-bacilli is much larger (69,000) than I employed, and there is a more sudden falling off (from 117,000 to 1500 between fifty-six and sixty-eight days) than is shown in my experiment. The record of his experiment covers only seventy-five days. The result with Flask E is particularly interesting in this connection, as it shows a somewhat larger increase in numbers than Flask D. It is probable that this is due to the additional nutrient medium conveyed into the flask along with the 6435 typhoid-bacilli. This infinitesimal amount of organic matter is, as has been shown, not sufficient to affect the typhoid-bacillus, but experiment E appears to indicate that the *B. coli* is more sensitive than the *B. typhi* to slight increments of food-material. The primary object of experiment E was to determine whether possibly symbiotic relations might obtain between the *B. coli* and the typhoid-bacillus, but the great multiplication of the former rendered this undertaking futile. On the first and third days a few colonies of typhoid-bacilli were identified on the plates (glucose-agar test), but on the tenth day and thereafter not a single typhoid-colony could be detected, although examinations of a large number of colonies were made repeatedly.[1] This, so far as it goes, indicates perhaps that the presence of the *B. coli* in water is hostile to the continued existence of the typhoid-bacillus, but the chance is obviously very great that typhoid-bacilli, if present (say 4136 among 299,000), might be entirely missed.[2] Guimbert states that the sowing of the *B. coli* and *B. typhi* together in water results in the disappearance of the latter (indol-test) after two or three days, but full details of the experiment are not given, and there are grave difficulties in the way of gaining satisfactory evidence on this point.

As a supplementary inquiry to these experiments with the colon-bacillus, a set of flasks, F, G, and H, were infected, two weeks later, with colon-bacilli derived from different sources, the other conditions being precisely similar to those in D and E.

The culture of the colon-bacillus with which F was infected was obtained from the spleen of an individual dying with typhoid fever. The spleen was procured for me through the kindness of Dr. A. P. Ohlmacher, who also sent me the following autopsy-notes:

"The patient was a male, aged twenty-four years. Death after six weeks from hemorrhage and sepsis due to perforation of ileum. Old adhesions around spleen, which was torn in removal on this account. Intestinal contents in abdomen and about the spleen."

From this spleen a typical colon-bacillus, agreeing in all respects with that isolated from normal fèces, was obtained in pure culture and used for infecting Flask F.

The colon-bacillus used in infecting G was obtained from the fresh feces of the lion by Mr. J. M. Flint, and did not differ in any respect from the typical *B. coli communis* from the other sources.

Flask H was infected with a culture of the colon-bacillus, for which I am also indebted to Dr. A. P.

[1] In these cases 1 c.cm. of the infected water was diluted 1:50 with sterilized distilled water and 1 c.cm. of the mixture plated; the counts made from these plates were, of course, multiplied by 50.

[2] Loc. cit., p. 140.

[1] The Würtz-agar-method has not proved available in this connection because the large number of colonies of the *B. coli* on each plate have speedily reddened the whole medium and rendered the search for typhoid-colonies hopeless.

[2] La Semaine Médicale, 1894, No. 29, p. 230.

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Ohlmacher. This was isolated from the pus in a case of appendicitis, and agreed in character with the cultures already described.

The results are as follows:

| | F. Inoculated with B. coli from spleen. | G. Inoculated with B. coli from feces of lion. | H. Inoculated with B. coli from appendicitis pus. |
|---|---|---|---|
| Initial number | 10,065 | 2,695 | 2,255 |
| After 2 days | 9,900 | 2,420 | 2,915 |
| " 8 " | 17,600 | 2,850 | 6,000 |
| " 12 " | 18,400 | 46,750 | 8,900 |
| " 22 " | 14,750 | 96,250 | 5,650 |
| " 36 " | 35,400 | 60,500 | 5,670 |
| " 134 " | 5,940 | 10,890 | 1,295 |
| " 248 " | Not continued | 4,675 | Not continued |

In two respects there is perfect agreement between the cultures of the *B. coli communis* from the four different sources, namely, they all exhibit multiplication and they all show long-continued vitality. The interesting difference in the amount of multiplication that occurs may be referable to racial variation, and suggests, in the cases of F and H, an approximation toward the typhoid-bacillus. I have not yet been able to make a trial of the behavior in water of the "varieties" of the typhoid-bacillus. It is likely that experiment in this direction would add to the number of varying "grades of vitality" in water. It is possible that there may be discovered a graded series of forms intermediate between the true typhoid-bacillus on the one side, which perishes in water under one-hundred days and never multiplies, and, on the other, the true colon-bacillus, which undergoes a very considerable multiplication in water and may maintain its vitality for upward of two-hundred-and-sixty-two days. The more tenacious vitality of the "typical" colon-bacillus, obtained from whatever source, together with its ability to thrive and multiply on very small quantities of nutrient material, is, however, a characteristic that separates it from the "typical" typhoid-bacillus and emphasizes the functional difference known to exist in other respects.

*Steam-sterilized distilled water.* Experiments upon the vitality of the typhoid-bacillus in sterilized distilled water have not led to more harmonious results than those with sterilized potable waters, although the more uniform quality of the water might have led us to anticipate greater uniformity of results. Hochstetter[1] records five days as the longest duration of vitality that he observed, while Straus and Dubarry[2] record a longevity of from thirty to thirty-five days, and Slater[3] has recently found living typhoid-bacilli in water fifty days after inoculation.[4]

In the last-mentioned two cases, however, the importation of considerable quantities of organic matter renders the results nugatory. Straus and Dubarry, indeed, find practically no difference between longevity in potable water and in distilled water, a fact in itself sufficient to arouse suspicion of some obscuring cause. My own experiments leave no doubt of the fact that, when the same typhoid-culture is introduced under the same conditions into ordinary surface-water and into distilled water, the bacilli invariably perish more rapidly in the latter than in the former. The longest duration of vitality in distilled water that I have observed is eighteen days. In this work with distilled water I have used both the method of direct plating and that of adding sterile bouillon to the infected flask, without, however, any difference in outcome. Four months after isolation of the typhoid-culture the mortality in distilled water was very great:

| | |
|---|---|
| Initial number | 2090 |
| After 1 day | 197 |
| " 3 days | 1 |
| " 6 " | 0 |

Twelve months after isolation the difference between the behavior in tap-water and in distilled water was still manifest:

| | Distilled water. | Tap-water. |
|---|---|---|
| Initial number | 1815 | 1815 |
| After 7 days | 0 | 1320 |
| " 12 " | 0 | 78 |

The striking difference between the behavior of the typhoid-bacillus in ordinary potable water and in distilled water led me to search for the cause, as it is clearly important to attack the problem from this side, as well as by experiments under "natural conditions." That the typhoid-bacillus is able to retain its vitality and virulence for a long time in unsterilized water is a point amply established by the history of epidemics, as well as by laboratory-experiments *in vitro*. The latter have so far chiefly been confirmatory of the evidence from epidemiology. The specific conditions of water that favor or hinder infection have remained, however, very obscure.

One conspicuous difference between distilled water and ordinary surface-water lies in the absence of organic nitrogenous matter (organic nitrogen or albuminoid ammonia) from the former. With a view to discovering more precisely what effect organic matter in sterilized water has upon the

[1] Arbeiten aus dem kaiserlichen Gesundsheitsamte, 1847, ii.

[2] Archives de Méd. Expt., 1889, p. 1.

[3] Journal of Pathology and Bacteriology, June, 1893, p. 468.

[4] Frankland, in the tables already spoken of, refers to Braem as asserting that the typhoid-bacillus lives for 188 days in distilled water. This is certainly an error, for Braem explicitly states (Ziegler's Beiträge, 1890, vol. vii, p. 11) that the large numbers of bacilli, and the concomitant food-material, which he found it necessary to use in his experiments, must have influenced materially the longevity. His observations, moreover, were purely microscopic, not cultural, and he expressly disclaims any implication as to the viability of the "tief dunkeln, dicken Stäbchen," which he found "nach 196 Tagen in sehr reichlichen Menge."

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typhoid-bacillus the following experiments were undertaken. I hope to supplement them in a short time with similar experiments upon unsterilized waters.

In order to secure uniform conditions, a standard peptone-solution was prepared by dissolving one gram of peptone in 500 c.cm. of redistilled water. In this solution analysis showed that there were present 12.6 parts per 100,000 of organic nitrogen (Kjeldahl method).[1] Accurately measured quantities of the peptone-solution were added by means of graduated pipets to a series of flasks each containing exactly 1000 c.cm. of sterilized distilled water. These were inoculated with typhoid-bacilli in the usual way. The organic nitrogen-content of each flask (parts per 100,000) is indicated by appended decimals:

| | $Z^1$ (0.0126 org.N). | $Z^2$ (0.0252 org.N). | $Z^3$ (0.063 org.N). | $Z^4$ (0.126 org.N). | $Z^5$ (0.0 org.N). |
|---|---|---|---|---|---|
| Initial number | 2090 | 2090 | 2090 | 2090 | 2090 |
| After 1 day . | 216 | 600 | 880 | 2585 | 197 |
| " 3 days . | 1 | 51 | 175 | 2100 | 1 |
| " 6 " . | 0 | 0 | 13 | 495 | 0 |
| " 10 " . | ... | ... | 0 | 3 | |
| " 17 " . | ... | ... | ... | 4 | |

Other experiments gave in the main confirmatory results, as:

| | $Z^6$ (0.0126). | $Z^7$ (0.0252). | $Z^8$ (0.063). | $Z^9$ (0.126). | $Z^{10}$ (0.252). | $Z^{11}$ (0.0). |
|---|---|---|---|---|---|---|
| Initial number | 1925 | 1925 | 1925 | 1925 | 1925 | 1925 |
| After 1 day . | 935 | 275 | 2475 | 4950 | 2035 | 990 |
| " 3 days . | 87 | 26 | 2035 | 3300 | 2365 | |
| " 18 " . | 1 | 0 | 2 | 15 | 468 | 2 |

The addition of one or two c.cm. of the standard peptone-solution (0.0126 and 0.0252 organic nitrogen) appears to be in general without effect upon the longevity of the bacilli, although the first experiment that I have recorded showed grades of vitality singularly adjusted to the rising increments of organic matter (*cf.* $Z^1$–$Z^5$). There is a slight multiplication of the typhoid-bacilli, when from 5 to 20 c.cm. of the peptone-solution (0.0630–0.252 organic nitrogen) are added, and some experiments even seemed to indicate that with 10 and 20 c.cm. this multiplication might give rise to very large numbers. These latter experiments, however, were complicated by the effects of summer temperature, and I shall pass them by for the present.

Without entering upon a catalog of the large number of experiments of this kind that I have made, it will suffice to state that the results are similar throughout: *the bacilli invariably live longest in those waters containing the largest amount of organic nitrogen.* It is a noteworthy fact that this holds true *even when no appreciable multiplication occurs.* (*Cf., e.g.*, $Z^3$ with $Z^5$, and $Z^8$ with $Z^{11}$.) This latter interesting circumstance is open to the interpretation either that the lives of individual bacilli are conserved by the presence of the organic matter, which acts as a kind of elixir of life, or that the more hardy bacilli are able to multiply for one or two generations on the slight amount of peptone supplied them, a multiplication that, however, is masked by the mortality occurring among their less resistant companions. For obvious reasons the second explanation seems to me the more plausible.

These results, showing the influence of organic matter upon the longevity of the typhoid-bacilli in distilled water, suggested a similar series with ordinary surface-water. My earliest experiments in this direction demonstrated that a quantity of peptone-solution (1 c.cm. = 0.0126 organic nitrogen) insufficient to affect the longevity in distilled water brought about considerable multiplication in the tap-water, and led to a long-continued persistence of vitality.

| | $X^1$ (0.0126 org. N). | $X^2$ (0.063 org. N). | $X^3$ (0.0 org. N). |
|---|---|---|---|
| Initial number . | 1,540 | 1,540 | 1540 |
| After 1 day . . | 1,500 | 1,925 | 1650 |
| " 6 days . | ca. 20,000 | Countless | 935 |
| " 10 " . . | 26,730 | 456,500 | 364 |
| " 23 " . . | 19,800 | 170,500 | 18 |
| " 80 " . . | 1 | 0 | 0 |

In following up this result an unexpectedly delicate reaction upon the addition of the peptone was observed. The introduction of 0.5 c.cm. and even of 0.1 c.cm. of the peptone-solution (0.0063–0.0012 organic nitrogen) brought about multiplication.

| | $X^4$ (0.0126 org. N). | $X^5$ (0.0063 org. N). | $X^6$ (0.0012 org. N). | $X^7$ (0.0000). |
|---|---|---|---|---|
| Initial number | 605 | 605 | 605 | 605 |
| After 3 days . | 6,160 | 3,190 | 500 | 358 |
| " 6 " | ca. 20,000 | ? | 15,000 | 342 |
| " 9 " | ca. 30,000 | 15,000 | ... | 288 |
| " 94 " | 29 | 0 | 0 | 0 |

The course of these experiments was broken into by the complication caused by summer temperature, and the inquiry was not resumed until the typhoid-culture was weakened by twelve months of artificial cultivation. The results at this time, however, fully substantiated the earlier conclusions, and, indeed, imparted to them additional emphasis. With this weakened culture no appreciable multiplication was detected, but the addition of 0.0012 part per 100,000 of organic nitrogen was still sufficient to affect the longevity of the bacilli.

| | $X^8$ (0.0). | $X^9$ (0.0012). | $X^{10}$ (0.0025). |
|---|---|---|---|
| Initial number . . | 1815 | 1815 | 1815 |
| After 7 days . . | 1320 | 1925 | |
| " 12 " . . | 78 | ... | 990 |
| " 15 " . . | 0 | 165 | 385 |
| " 64 " . . | ... | 0 | 2 |

These experiments demonstrate that the amount of organic nitrogen of a certain kind in a given

[1] This determination was kindly made for me by Mrs. R. H. Richards, of the Massachusetts Institute of Technology.

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sterilized water plays an important rôle in lengthening the life of the typhoid-bacillus in that water. In this connection it is interesting to note that Frankland[1] found in his comparative experiments with sterilized Thames water, Loch Katrine water, and deep well-water that the longevity of the typhoid-bacillus is distinctly greatest in the Loch Katrine water, and that this contains the most organic matter. "Not improbably," he says, "these circumstances are connected together." The difference between distilled water and ordinary surface-water, however, shows that other factors, presumably those concerned with the mineral content of the water, may be involved.[2]

The upshot of the experiments recorded in this paper may be stated briefly as follows:

1. The age of the typhoid-stock influences greatly the life of the bacilli introduced into water, a freshly isolated stock possessing distinctly greater vitality than one that has been under cultivation for some months.

2. The typhoid-bacillus, when introduced with proper precautions into sterilized Lake Michigan water, does not multiply, but may, under certain conditions, maintain its vitality for upward of ninety-three days.

3. The colon-bacillus, on the contrary, under similar conditions undergoes rapid multiplication and may remain alive for upward of two-hundred-and-sixty-two days.

4. In redistilled water the typhoid-bacillus perishes much more speedily than in the water of the lake.

5. The quantity of organic matter (peptone) in redistilled water influences fundamentally the life of the typhoid-bacillus; so small an increment as 0.0126 organic nitrogen (parts per 100,000) causing a perceptible lengthening of life.

6. In sterilized lake-water the addition of a still smaller quantity of organic nitrogen—0.0012—affects the longevity of the typhoid-bacilli introduced.

## A NEW METHOD OF BANDAGING THE THUMB.[3]

BY JULIUS SELVA, M.D.,
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THE art of bandaging was born with the fathers of medicine, Hippocrates, Galen, Soranus, Glaucus, and other eminent physicians; and although in ancient times bandages were "plainly intended more for parade than use,"[1] yet we must look at those rudimentary appliances as the foundations of our present system of bandaging. The "scapha," or boat-like bandage; the "gallia gladiatoris," or bandage like a gladiator's helmet; the "regium," or bandage like a crown, have all gone into disuse; but from these antique forms were developed, by the process of evolution, in the course of centuries, the more efficient and simpler bandages of modern times.

The essential rules of bandaging remain always the same: a roller is turned around a limb, trunk, or head, either in circular, spiral, reverse, recurrent, or figure-of-8 form.

It is not necessary to emphasize in this paper the great use and importance of bandages, as there is hardly any one operation in surgery practicable without their assistance.

I have devoted much time to the application of bandages during my experience as a surgical interne to the Boston City Hospital and the Children's Hospital, and about a year ago I devised a new method of bandaging the thumb. Before describing this method, an account will be given of the different thumb-bandages that have been used by various authors.

The thumb-bandages that are on record may be classified into four different types: (1) The spiral. (2) The reversed. (3) The spica or figure-of-8. (4) The combination of these forms.

The spiral bandage for the thumb is probably the oldest variety. It is described in the works of Heister,[2] and also in recent times by Gross[3] and others.

Thillaye,[4] Gerdy,[5] Liston,[6] Velpeau,[7] Jamain,[8] Guillernin,[9] Heath,[10] Leonard,[11] Smith,[12] Mears,[13] and others, described later on a bandage of the thumb, which is practically a simple spica of the thumb and wrist. It begins by two circular turns round the wrist. After the last turn, which should be terminated upon its radial side, the head of the roller is to be directed from the external to the internal side of the thumb, passing between this and the index-finger, to return and cross its base, and be carried again about the wrist. These double circulars are repeated to form a spica, till the whole bandage is exhausted. This bandage makes no provision for covering the distal phalanx of the thumb.

Wales'[14] crossed bandage of the thumb is about the same as the preceding ones. It begins by circular turns at the wrist, and then a successive number of spica turns are made to cover in the thumb, forming an *ascending spica*. When the turns are made from the base downward the spica is said to be *descending*. The bandage terminates at the wrist. The end of the thumb is left uncovered.

Hopkins'[15] bandage does not differ from that of Wales.

[1] Loc. cit., p. 251.

[2] The evidence adduced by Frankland (Proc. Roy. Soc., vol. lvi, pp. 225–227) to support the view that typhoid-bacilli can be educated for aquatic life is inadequate. The quantity of organic matter inevitably introduced in such experiments as he has described is, perhaps, sufficient to account for the phenomena that he is inclined to attribute to "a prolonged and gradual training in more and more aqueous culture-media."

[3] Demonstrated before the Boylston Medical Society, March 29, 1895.



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Pye's[16] spica of the thumb is begun with a few turns round the wrist from within outward if the outside of the thumb is to be most supported, and in the opposite direction if the ball is the part requiring the firmer pressure.

Hill,[17] Hunter,[18] Wyeth,[19] Wharton,[20] and others describe a bandage of a characteristic type. It commences round the wrist, but the first turn is carried at once beyond the last joint, turned once or twice round the last phalanges, then returned by *spiral* turns or spiral reverses to the metacarpo-phalangeal joint, where the ball of the thumb is covered by spica turns round the thumb and wrist, each figure-of-8 *alternating* with a *circular* turn round the wrist. Thus this bandage is a combination of the circular, spiral reverse, and figure-of-8 turns. The end of the distal phalanx is not covered.

In the *American Text-book of Surgery*[21] is described a similar spica of the thumb, which starts at the wrist. According to the figure, it ends at the wrist and does not cover the pulp of the thumb.

The *gauntlet* and *demi-gaunlet* bandages described in ancient and modern text-books are applied to the wrist and finger, and they are not especially adapted to the thumb. No mention is made of thumb-bandages in the classic works of Bell,[22] Castle,[23] Symes,[24] Cooper,[25] Smith (Stephen),[26] Esmarch,[27] Hamilton,[28] Bryant,[29] and others.

Inasmuch as all the bandages that have been used for the thumb are connected with the wrist, their efficiency is more or less impaired by the motions of this joint. Their application presents the following features: (1) They begin at the *wrist.* (2) They end at the *wrist.* (3) The distal phalanx of the thumb is not completely covered. (4) The hand—*i. e.*, the *metacarpus*—does not participate in the bandage.

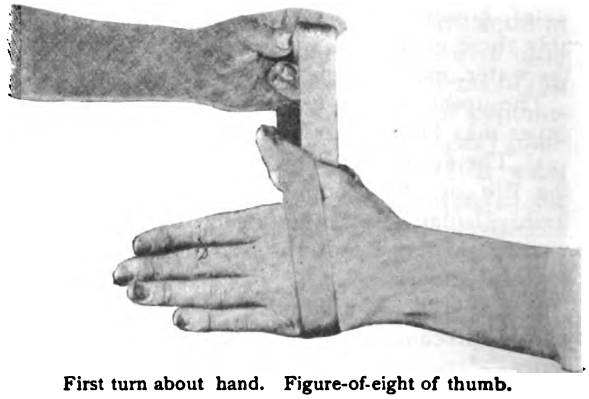
FIG. 1.

Beginning of bandage—application to abducted thumb.

*The new method of bandaging the thumb* that I have devised is as follows: The length of the bandage is from 4 to 6 meters and the width from 2½ to 3 centimeters, according to the size of the hand.

*Application.* The hand is held in a position of semipronation, the thumb pointing upward and being *abducted* at an angle of about 50°, so that the end of the distal phalanx is in line with the heads of the second and fifth metacarpal bones. The first stage of the application of this bandage consists in completely covering the terminal phalanx. The initial end is applied to the outer lateral surface of the second phalanx of the thumb, near its base, and the roller is carried along this surface, over the palmar side of the pulp of the distal phalanx, to

FIG. 2.



First turn about hand. Figure-of-eight of thumb.

the inner lateral surface of the second phalanx; this turn is held in place by means of the index-finger and thumb of the left hand of the operator, as shown in Fig. 1; then the roller is returned in a *recurrent* form to the place of origin; this last turn should overlap the preceding one, and should be placed in as dorsal a position as possible; then the roller is directed downward and inward over the dorsum of the terminal phalanx and is turned around the very tip of the pulp (Fig. 1), forming a loop that will cross at a point corresponding to the center of the nail. Having thus covered the terminal phalanx, the roller is carried over the dorsum of the hand as low down as the head of the fifth metacarpal bone, the thumb all the time being held *abducted;* it is then turned over the palm of the metacarpus to the dorsal surface of the terminal phalanx, at the point of the first crossing, thus forming a figure-of-8 turn (Fig. 2). This turn can be repeated over itself if the first one is not firm enough for starting. Then a series of successive figure-of-8 turns are made, each overlapping its predecessor and being about half a centimeter apart, forming an *ascending spica;* these turns are carried as high as the carpo-metacarpal articulation, and the bandage is ended by pinning it at the palmar surface of the ball of the thumb, or by splitting and tying it around the metacarpus.

This bandage is essentially a figure-of-8 form, the *smaller* or *lower* loops of which go around the first and second phalanges and part of the ball, and the *larger* or *upper* loops pass and overlap each other around the metacarpus and upper portion of the

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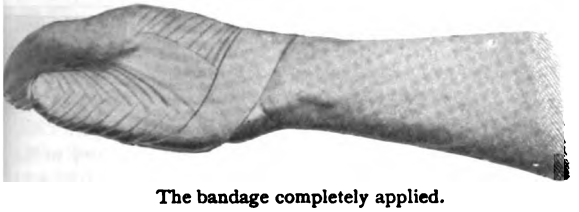
ball of the thumb. The bandage can be applied as high as necessary, and in order to completely cover the very highest portion of the ball the lower loops should be applied nearer together, or they can be repeated over themselves at the palmar surface of the base of the second phalanx, whereas the upper loops can be applied successively in an ascending form over the surface of the ball. Of course, if there is no indication, the *recurrent* portion of the bandage may be omitted, in which case the roller is started by one or two circular turns around the *end of the distal phalanx*, and then the rest of the bandage is applied as before. If, after starting, the roller should be directed first over the *palmar* surface of the metacarpus, in making the upper loop, the crossings of the figure-of-8 turns will be situated on the palmar side of the thumb. Fig. 3 shows the thumb-bandage applied.

FIG. 3.



The bandage completely applied.

It will be noticed that these figure-of-8 turns not only overlap themselves, but they also exert an *ascending compression*, which adds strength to the bandage and produces efficient immobilization of the thumb. As these turns are being applied, the thumb, which originally was in a position of *abduction*, is gradually approached to the metacarpus and it becomes more and more *adducted*.

This bandage, unlike the others that have been previously described, does not begin or end at the wrist; it is a bandage that is applied to the phalanges of the thumb and to the metacarpus, and consequently the motions at the wrist-joint do not interfere with the efficiency of the appliance. Provision is made by this bandage for completely covering the terminal phalanx of the thumb.

*Uses.* 1. To apply dressings to any portion of the thumb, or to the dorsal or palmar surface of the metacarpus.

2. For immobilizing fractures, dislocations, or sprains of the thumb, in which cases the application of strips of sticking-plaster, in the shape of the bandage described, is useful.

3. For the retention of splints.

4. To arrest hemorrhage.

[NOTE.—In bandaging the arm to the thorax, and the leg to the pelvis I have used a method similar to that described.]

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## TONGUE-TRACTION AS A CARDIAC STIMULANT.


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IN June, 1892, Dr. J. A. Mullin, of Hamilton, in a discussion on chloroform before the Ontario Medical Association, said that he regarded forcibly pulling on the tongue several times as the most powerful excitor of respiration. I determined to make use of the suggestion at the first opportunity, and the manipulation was, therefore, resorted to in all anesthetic accidents with animals used in the physiologic demonstrations during the following winter sessions.

We soon learned to place considerable confidence in this novel measure. It was about one year thereafter that I first saw the recommendation of "rhythmic tongue-traction" in asphyxia by Laborde, of Paris.

Early last session, after some successful demonstrations of "blood-pressure" on a large dog, the sternum was rapidly cut away and the thoracic organs exposed. After stimulation of the vagus, to note the effect on the exposed mammalian heart, the dog was allowed to die by asphyxia. While my associate Dr. O. Weld (now of Vancouver, B.C.,),

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was chloroforming a rabbit, to show the effect on the blood-pressure of depressor-nerve stimulation, the class clamored for an exhibition of tongue-traction.

The dead dog was brought into service, the tongue was grasped with an artery-forceps and violent rhythmic traction was practised. The result was a surprise; instead of the diaphragm undergoing the expected rhythmic movements, the apparently dead heart, which was exposed, commenced to beat and underwent vigorous movements for some time. A number of dogs, cats, and rabbits were anesthetized and similarly experimented upon. Drs. Weld, Williams, and Neu were present at some of these experiments, and it was soon determined that tongue-traction is a powerful cardiac stimulant.

In the cat, tongue-traction stimulates diaphragmatic more readily than cardiac movements; in the dog and rabbit the effect is more marked on the heart.

Tongue-traction increases not only the rate of an exposed and failing heart but also the vigor of its contractions. It appeared at first that this method might stimulate the heart by lowering the blood-pressure, through the tissues of the neck acting as a pump on the carotids and aorta, or through inhibition of the vasoconstrictor center. To determine the truth or falsity of this theory some animals were allowed to die of hemorrhage and the effects of tongue-traction noted. The effects on these hearts were, if anything, more marked than in animals dying with cardiac distention.

On some animals both vagi were divided, but the results of tongue-traction on the heart were unaltered. We were therefore led to conclude that its mode of action was on the cardio-accelerating center in the medulla. This view was supported by the fact that, especially in the cat, the respiratory movements were also excited. Marey[1] has made some investigations to determine how tongue-traction stimulated the respiratory movements. He could abolish the results on the diaphragm by cutting either the sensory nerves of the tongue or the phrenics.

Laborde speaks in the most confident terms of the superiority of this method of restoring cases of asphyxia, and I am satisfied it is a method that will succeed, even when other methods fail, because it acts as both a respiratory and cardiac stimulant. It could and should be combined with some good method of artificial respiration in anesthetic accidents, cases of drowning, asphyxia and syncope from any cause.

On several occasions we were able to restore animals by the combined method when we otherwise failed. It is easy to exhaust this effect on the medulla, so that if tongue-traction be practised on the animal before the heart ceases to beat, no amount of traction can restore the contractions when the heart-beat has ceased.

[1] La Tribune Médicale.

## CLINICAL MEMORANDA.

### NEPHRECTOMY FOR TUBERCULOSIS OF THE KIDNEY IN A PATIENT ALWAYS A RESIDENT OF COLORADO.

BY WILLIAM S. BAGOT, M.D. (Dublin University),
OF DENVER, COL.;
PROFESSOR OF GYNECOLOGY IN THE UNIVERSITY OF DENVER; GYNECOLOGIST TO ST. LUKE'S AND ST. JOSEPH'S HOSPITALS; FORMERLY SENIOR ASSISTANT PHYSICIAN TO THE ROTUNDA LYING-IN HOSPITAL, DUBLIN; FELLOW OF THE BRITISH GYNECOLOGICAL SOCIETY, ETC.

MRS. P., aged twenty-two years, who had been married six months and had had no miscarriages, was sent to me by Dr. James A. Hart, of Colorado Springs. It was learned that her paternal grandfather had died of pulmonary tuberculosis. Her father, a German by descent, began to complain of pulmonary trouble when in his twentieth year, and was sent to Colorado on account of pulmonary tuberculosis nine years afterward. He died at the age of forty-nine years. As far as can be ascertained no other immediate relative has suffered from tuberculosis.

Mrs. P. was born in Colorado. When three years old, she had a severe fall, attended with some injury to the right knee, after which the part remained swollen and inflamed. For seven years her parents consulted physicians without receiving any definite diagnosis or obtaining relief for the condition. At the end of this time they consulted Dr. Sandford, of Colorado Springs, who diagnosticated the trouble as tuberculosis of the knee-joint, and performed the operation of erasion, with a successful result. From that time, her tenth year, the patient remained in apparently perfect health till about Christmas, 1893, when she had an attack of influenza, after which she suffered from some trouble with her bladder and kidneys. For the latter trouble she was treated by Dr. James Hart during February and March, 1894, but soon discontinued treatment, as she felt much relieved. She was married in the following June. In September she began to feel ill and noted frequent urination, with fever, and suffered from severe pain in the region of the right kidney, which radiated up toward the right shoulder and down into the thigh on the same side. She then sent for Dr. Hart, who examined her and found a large tumor in the right hypochondriac and lumbar regions.

On November 81. 1894, I saw the woman in consultation with Dr. Hart and corroborated his opinion that she was suffering from tuberculosis of the kidney. She was then extremely emaciated, being reduced from 160 to about 100 pounds in weight; the evening temperature was 101.5° F., the pulse 116 per minute. A large tumor occupied the right renal region, and a greatly thickened ureter could be felt crossing the brim of the pelvis. Through the vagina the ureter could be felt to be thicker than one's little finger. The urine was loaded with pus. On palpation the left ureter and kidney seemed normal. Examination of the lungs revealed slight consolidation of the right apex.

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The patient was admitted to St. Joseph's Hospital on November 24, 1894, her temperature on that evening being 101.5° F. and her pulse 108. She was kept in bed, given a milk-diet and iron (Blaud's pills) in an endeavor to build up her strength, as she was extremely anemic and so weak that I did not think she could stand any operative interference. After six days had elapsed, during which her condition had become, if anything, worse, her evening temperature still reaching 101.6° F., and her pulse 112, I decided to operate. Accordingly, on December 1, 1894, I performed nephrectomy, using ether as the anesthetic.

The kidney was exposed by means of Czerny's incision; then, in order to gain more room, as the organ was very much enlarged, measuring 10 inches by 6 inches, a second incision was made somewhat obliquely from the center of the first downward and forward for about three inches, without opening the peritoneum. On exposing the kidney, the tuberculous process was found to have transgressed the tunica propria and to have invaded the perirenal fat. While enucleating the kidney, which was very adherent in places, it ruptured, and a large quantity of pus escaped. This was at once washed away by flushing the wound with sterilized salt-solution. Before securing the pedicle the ureter, which also was tuberculous and thicker than a little finger, was separated as far down into the pelvis as possible and resected. The renal vessels were then ligated with catgut and the kidney removed. A small rubber drainage-tube was inserted into the proximal end of the ureter and by a suture secured into the lower end of the Czerny incision. The wound was flushed out with sterilized salt-solution and all tuberculous foci in the perirenal fat scraped as thoroughly as possible with a sharp curet. The incisions were then closed with silkworm-gut, leaving sufficient space to pack the cavity with strips of plain sterilized gauze, interspaced with strips of iodoform-gauze (5 per cent.). After this a sterilized gauze dressing was applied.

For the first seventeen hours after the operation the temperature gradually rose from 92.2° F. till it reached 103° F.; *i. e.*, 1.4° higher than it had been the evening before operation. During the next twelve hours it dropped to 100.4° F., this being the highest point reached during the remainder of the convalescence. The temperature became normal on the tenth day. The wound was dressed and the packing renewed on the third day. After this the dressings were renewed every second day, the stitches being removed on the twelfth day. Recovery was somewhat retarded by the appearance from time to time of small tuberculous foci in the wound. These were scraped away with a sharp curet and dusted with flowers of sulphur, which seemed to act better than balsam of Peru or iodoform, both of which I had tried. The patient left the hospital February 3, 1895, a small sinus still existing. When last seen, in June, 1895, this sinus had almost closed; all symptoms had disappeared and weight had increased to 157 pounds.

This case is of interest from the fact that it is, as far as I can learn, the first case of nephrectomy for tuberculosis of the kidney contracted in Colorado.

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***Dr. L. Galassi***, Professor of Special Pathology in the University of Rome, died on August 31st, of a cardiac affection.

## *LOSS OF CONJUGATE DIVERGENCE, OR PARALYSIS OF EXTERNAL ROTATION OF THE EYES.*

BY HOWARD F. HANSELL, M.D.,
OF PHILADELPHIA;
CLINICAL PROFESSOR OF OPHTHALMOLOGY IN THE JEFFERSON MEDICAL COLLEGE, ETC.

IN a somewhat hasty search through accessible literature I have been unable to find a case analogous to that herewith described. Writers on mental and ocular disease refer briefly to conjugate deviation of the eyes and paralysis of lateral movement as associated conditions in hemiplegia when the lesion has been either determined, or is supposed, to be in the pons, corpus striatum, or optic thalamus, or the cortex of the brain. The case to be reported differs essentially from other cases of conjugate deviation in that, while there was an utter inability to turn either eye outward a single degree beyond the median line, there was no deformity or abnormal turning of either eye—that is, there was no paralysis and no conjugate deviation. Schieff and Adamuk claim that the corpora quadrigemina regulate in part the eye-movements: "Of the posterior pair the right one governs the movement to the right, the left one that to the left. Irritation of both bodies of the same side causes deviation of the eyes to the opposite side of the anterior bodies in the median line upward, and of the posterior downward and inward." Graefe assumes the existence of a separate center for the associated movements to explain "co-ordination-spasm," or co-ordination-paralysis, or a different action of each eye—thus, one up and the other down, a "disjunction of co-ordination."

Dr. F. X. Dercum, under whose care the patient was, and to whom I am indebted for the opportunity to make the ocular examination, has kindly furnished me with his notes.

*Cerebellar Disease presenting Unique Ocular Symptoms.* A. P., an unmarried young woman, aged seventeen years, presented a negative family history. The patient is the youngest of three children, and was healthy at birth. At the age of six months she was severely ill with scarlet fever and diphtheria, making a "poor recovery." She had a persistent discharge from both ears and numerous abscesses in the glands of the neck. She was under medical attendance almost constantly until she was seven years of age, but improved somewhat at this time. Two years ago she began to menstruate, and since that time has noticed difficulty in walking, first referred to the right leg. When she came under observation the girl presented excessive ataxia in all her movements, and swayed greatly on standing. The muscles generally were weak, but no localized paresis could be detected. The knee-jerks were increased on both sides. There was no tendency to spastic rigidity, and the legs were perfectly flaccid. There was no anesthesia anywhere. The pupils were large and responsive to light. Marked deafness existed, a watch being heard only on contact.

Examination of the ears by Dr. S. MacCuen Smith revealed a perforation of both drums. It was found that the patient was unable to turn the eyes to the right or the left. She could readily fix all objects in the median line; convergence was maintained, and was normal in range. As soon as the object was moved to one or the other side and the girl was requested to look at it,

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she utterly failed to direct the axis of either eye toward it. Many attempts were made, so that no misunderstanding could arise, but all were fruitless. There was no diplopia and no squint, either manifest or latent. Conjugate deviation was absent. The eyes were turned neither to the right nor to the left, but steadily maintained a position of parallelism or convergence. None of the muscles was paralyzed; the pupils were equal in size and normal in action; refraction presented a low hyperopia; vision was equal, 20/70; accommodation, 10 D.; exophoria for distance, 2°; abduction, 10°; adduction, 20°; there was no limitation of the fields for white or colors, and no evidence of inflammation; the media were clear and each fundus was normal. The discs showed no peculiarity or sign of previous or present neuritis or papillitis.

Extended observation will be necessary to determine the pathology. The diagnosis lies between hysteria and intracranial disease. If the former is present, no explanation so well fits the case as that offered by Allen Starr[1] of the presence of a lesion, microscopic it is true, in the nerve-cells or fibers, resulting probably from impaired nutrition from an altered condition of the blood or of the bloodvessels, and secondary changes in the excretions. If intracranial disease exists, the location of the lesion is extremely uncertain. The absence of paralysis and the loss of co-ordination point to the cerebellum or to the cerebral cortex as the site of the lesion.

Risien Russell[2] concludes that probably all ocular movements are represented in the cerebral cortex. The ocular effect produced by ablation of part of the cerebellum is paralytic, but whether from the direct influence of the cerebellum on the muscle or indirectly through the loss of the cerebellar influence over the cerebrum is uncertain.

## EXCISION OF THE COCCYX FOR CONSTANT PAIN RESULTING FROM AN UNUNITED FRACTURE.[3]

BY LEWIS H. ADLER, JR., M.D.,
OF PHILADELPHIA;
PROFESSOR OF DISEASES OF THE RECTUM IN THE PHILADELPHIA POLYCLINIC, ETC.

IN presenting the history of the following case, I by no means do so with the idea of advocating so radical a procedure as an incision in all, or even in the majority, of patients suffering with pain in the region of the coccyx. In the present instance, in which all other means had been tried and proved futile, and in which pain was induced by every movement of the bone, I think that the operation was fully indicated.

The particulars of the case are as follows:

Mrs. A. W., aged forty-three years, was brought to my office February 21, 1895, by Dr. I. Grier Barber, of Danville, Pa. The family history was excellent. The patient had always enjoyed the best of health until six years ago. In December of that year (1889) she slipped and fell on the edge of a board-walk, striking the lower portion of the spine. She was unconscious for a short while. Ecchymosis developed slowly over the region of the sacrum. Extreme pain was experienced and a sensation of something moving when she attempted to stir, which was especially marked in making an effort to sit. The bowels would not move without an enema, and at such times the pain was so severe as to produce faintness. About four months after the accident the woman was hardly able to walk a distance of three or four squares. During all this time she had consulted no physician.

A year-and-a-half after the reception of the injury she was examined under chloroform-anesthesia, and the coccyx was found to be united to the sacrum at a right-angle. The bone was refractured, but the operation was unsuccessful in diminishing the woman's suffering. About this time she lost flesh and had a purulent discharge from the bowel every week or so, the quantity averaging from one to two tablespoonfuls.

For about a year previously to consulting Dr. Barber the patient had been under the care of a physician who had been treating the bowel-trouble with local measures, but without any appreciable relief. Upon consulting Dr. Barber (a week before I saw her), he had Dr. Hoffa and Dr. P. C. Newbaker, both of Danville, examine the patient. As a result of their investigation they wrote me that the rectum was very painful and sensitive, principally at the lower end of the coccyx. A segment of the coccyx about an inch long was quite movable, as though there was an ununited fracture. It was thought possible that the bone might be necrosed and that an internal fistula might exist, but these suppositions could not be confirmed.

Upon making a digital examination of the rectum I found about an inch of the coccyx very freely movable, and the structures overlying the lower portion of the sacrum were adherent to the bone.

On February 22d the patient was etherized, the sphincters were stretched, and a curvilinear incision was made over the sacrum and around one side of the coccyx. The tissues were dissected so as to expose fully the seat of trouble. The upper portion of the fractured end of the coccyx was found to be necrosed, and the entire bone with the exception of the tip was removed.[1] The structures surrounding the bone were denser than usual and were firmly adherent to the coccyx, so much so, in fact, that considerable care was necessary in order to avoid wounding the rectal wall.

A rubber drainage-tube was introduced into the wound and the incision was closed with silkworm-gut sutures. Iodoform was dusted over the part and the usual antiseptic dressing applied. It was necessary to catheterize the patient for some ten days after the operation. On the third day the bowels were moved by the administration of fractional doses of calomel and sodium bicarbonate, followed by a saline. On the fourth day the wound was found to be infected, presumably from contact with fecal matter. The stitches were all removed, as well as the drainage-tube. The wound was washed with a mercuric-chlorid solution (1:2000), followed by a 2 per cent. solution of creolin. The cavity was packed with iodoform-gauze.

On March 4th a sinus full of pus was discovered at

[1] The Western Reserve Medical Journal, May, 1895.
[2] Journal of Physiology, 1894 vol, xii, i.
[3] Read before the Philadelphia County Medical Society.

[1] Dr. H. Augustus Wilson, of this city, first proposed to me the idea of allowing the tip of the coccyx to remain if possible, when excising the body of that bone, for the reason that the muscular and ligamentous attachments thereto maintain their usefulness much better than when the entire bone is removed.

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the lower angle of the wound. This was opened freely under local anesthesia induced by ethyl chlorid. From this time on the patient's recovery was uninterrupted though somewhat slow, and she was discharged, practically free from pain, on April 17th. Since then the patient has written to say that she has gained in weight about sixteen pounds.

1610 ARCH STREET.

### *HEMATEMESIS IN A CHILD TWO YEARS OLD.*

BY HENRY M. FISHER, M.D.,
OF PHILADELPHIA.

ABOUT midnight of August 23, 1895, J. P. began to vomit blood, about "a cupful," at first bright red. The vomiting recurred at intervals of half an hour for two or three hours. At 9 o'clock on the following morning a considerable amount of entirely undigested green corn was ejected, and with it blood-clots and some black liquid blood. When I saw the child, two hours later, he was not markedly prostrated, with a pulse of 120. There was no nasal obstruction, and there were no signs of recent epistaxis. The blood actually vomited had not been saved, but the sheet upon which the child lay was deeply stained, and there were also numerous clots upon it. I ordered a milk-diet, with lime-water, and one-half dram of magnesium sulphate every hour till a free movement of the bowels occurred, and directed the mother to take the child to a hospital in case of recurrence of the hematemesis.

Five days later the parents reported that the magnesium sulphate had caused several black movements, and that there had been no further bloody vomiting.

It seems that the child had partaken freely of green corn and cantaloupe on the evening before the bloody vomiting took place.

## BACTERIOLOGIC NOTE.

### *THE USE OF THE AUTOCLAVE FOR STERILIZING NUTRIENT GELATIN.*

BY WYATT JOHNSON, M.D., AND J. E. LABERGE, M.D.,
OF MONTREAL, CAN.

[*From the Laboratory of the Board of Health of the Province of Quebec.*]

AN impression seems to exist in many bacteriologic laboratories that the sterilization of nutrient gelatin by means of the autoclave is impracticable, owing to the tendency of this medium to lose its power of setting firmly when exposed to a temperature above the boiling-point of water. Our experience has shown the contrary to be the case, and the results obtained by a single sterilization in the autoclave have been fully as satisfactory as those obtained by fractional sterilization at 100° C. on successive days, so that we now employ the autoclave by preference to avoid delay and uncertainty. The steam-pressure employed is 3/4 of one atmosphere (equal to 115° C.), saturated steam for fifteen minutes, after the gelatin has been filtered and filled into tubes.

In a series of comparative tests in which half of the nutrient medium was prepared by fractional sterilization in an Arnold sterilizer, that prepared in the autoclave was equally transparent, retained the desired degree of alkalinity (usually 2 per cent. acid to phenolphthalein), and remained firm in plates or roll-tubes at a temperature of from 24° to 25° C. In no case have we had any spontaneous growth in the tubes after this sterilization.

We claim no priority for these observations, as the autoclave at 105° C. seems to have been employed for some years in several French laboratories for sterilizing gelatin,[1] though this fact does not appear to have become as generally known as it might be. In the laboratory of the Board of Health of the Province of Quebec attention was first attracted by the fact that some gelatin, sterilized in the autoclave through a mistake, retained its power of setting. In our experience a temperature of 105° C. has not always been sufficient to insure perfect sterilization.

With reference to the temperature we employ, it may be well to mention that the test-tubes and small bottles which we use are made of very thick glass, so that the heat penetrates slowly. In working with thinner ones a lower pressure or a shorter time may be found to give the best result. We have employed gelatin giving a firm jelly, as considerable difference exists between the different brands in respect to their melting-points.

## MEDICAL PROGRESS.

***Tubercle of the Optic Thalamus with Intention-tremor and Tetanoid Rigidity.***—EDWARDS (*Lancet*, No. 3753, p. 260) has reported the case of a boy, six years old, who seven weeks before coming under observation was noticed to drag his right leg in walking. Two or three days later it was observed that in taking food the child held his spoon in the left hand, and upon his mother insisting upon the use of the right hand for that purpose this latter began to tremble. The trembling was at first slight, but gradually grew more marked. For three weeks there had been severe frontal headache and for four days vomiting. For a short time vision seemed to be impaired. The tremor in the right arm was a coarse and jerky movement, disappearing entirely when the arm was at rest. The movements came largely from the shoulder. There was no nystagmus or syllabic speech. The right arm and leg were distinctly weaker than the left. There was no facial paralysis. There was well-marked ankle-clonus on the right side, but none on the left. The wrist-jerks, as well as the epigastric, abdominal, cremasteric, and plantar reflexes were alike on both sides. There was marked rigidity on passive movement of the right knee-joint. The patient had difficulty in standing unsupported, but not increased by closing the eyes; nor was there any sign of reeling in one or other direction. With assistance he was able to walk and the gait was distinctly ataxic. Sensation was universally normal. The functions of the bladder and rectum were normal. The vomiting was controlled upon the administration of bismuth, but the headache persisted. While under observation well-marked optic neuritis developed in the left eye. There appeared to be also inflammation of the right nerve, but the observation was interfered with by a conjunctivitis, with slight clouding of the cornea, and concomitant blepharospasm. The other cranial nerves

[1] See Thoinot: Précis de Microbie, p. 83.

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appeared to be normal. Toward the close of the ophthalmoscopic examination, which was somewhat prolonged, the patient was suddenly seized with an attack of tetanoid rigidity. He became unconscious, with the head bent back, the spine arched, and the whole body extremely rigid, the teeth clenched, and the eyes turned to the right. The face preserved its natural color. This condition persisted for about three minutes, when the muscles gradually relaxed and there was a return to complete consciousness. No clonic contractions followed. It was now learned that the child had had three similar attacks the night before. Large doses of potassium iodid were administered, in conjunction with mercurial inunction. At a later date three more attacks of tetanoid rigidity occurred, the patient falling asleep, worn out, after each. On awaking he moaned constantly and complained of his head. On another occasion five attacks occurred in rapid succession, and upon the following day death ensued. At the post-mortem examination, held sixteen hours after death, rigidity was very marked. The skull-cap was normal; the membranes were congested, but did not show any signs of inflammation. A distinct, firm tumor could be felt on the left side of the brain. On opening the left lateral ventricle in the usual way a very considerable quantity of clear, serous fluid gushed out. There was no excess of fluid in the right lateral ventricle. The tumor was about the size of a large walnut and was found to be situated in the left optic thalamus. A vertico-transverse section through the tumor and the left cerebral hemisphere showed that the growth was pressing on the left internal capsule. The floor of the fourth ventricle presented no signs of pressure, and sections through the medulla and the upper cervical region of the cord appeared normal. Microscopic examination of the growth showed it to be undoubtedly tuberculous.

***Acute Rheumatism in the Sequence of Tattooing.***—WILLIAMS (*British Medical Journal*, No. 1800, p. 1440) has reported the case of a militiaman, seventeen years old, who, three days after an extensive tattooing of the left forearm, complained of pain, swelling, and tenderness of the left wrist. A day later acute left-sided pneumonia developed, but rapidly subsided. The left shoulder, knee, and ankle were successively involved in the inflammation, and a cardiac bruit developed. Finally, chorea appeared as a complication, limited for a time to the left side, but shortly spreading to the right, where rheumatic inflammation was attacking the joints. The last, however, quickly subsided, leaving a general though mild chorea and a permanently damaged heart.

## THERAPEUTIC NOTES.

***The Treatment of Malignant Neoplasms with the Toxin of Erysipelas.***—CZERNY (*Münchener medicinische Wochenschrift*, 1895, No. 36, p. 833) cites two cases of carcinoma in which a favorable influence was exerted by an intercurrent attack of erysipelas, and four cases of sarcoma in which a similar result was brought about by injections of the toxin of erysipelas. The following conclusions are offered: Injections of sterilized, but not filtered, mixed cultures of the streptococcus erysipelatosus and the bacillus prodigiosus induce rapid elevation of temperature, often with rigor, gastric disturbance, fulness in the head, and delirium; sometimes with labial herpes, and almost always without local inflammatory manifestations. The intensity of the reaction varies with the individual, the amount of toxin injected, and as to whether the fluid enters the interstitial tissues or the bloodvessels. These manifestations subside in the course of a few hours without permanent disturbance of the general condition. Frequently repeated injections are followed by loss of appetite, emaciation, anemia, and general apathy. The injections are capable of exerting a specific influence upon the sarcomatous growths, and under favorable circumstances may lead to recovery. The neoplasms become saturated with serum and then disintegrate and are absorbed, or soften, with necrosis and exfoliation. As the result in the individual case is uncertain, this mode of treatment cannot replace the operative method or render this superfluous. It is, therefore, for the present indicated only in cases of inoperable or recurrent neoplasms. It is possible that the method may be useful after operations for sarcoma, to prevent recurrence. In cases of carcinoma the injections appear at most to retard the growth of the tumor, but not to lead to recovery.

***Apolysin*** is the name given by NENCKI and JAWORSKI (*Allg. med. Centr.-Ztg.*, No. 60–62; *Centr. für die ges. Ther.*, Sept. 1895, p. 528) to a new antipyretic and analgesic belonging in the same chemic group as phenacetin. The substance appears as a whitish-yellow, crystalline powder, of slightly acid taste, of feeble odor, difficult of solution in cold but readily soluble in hot water, and melting at 72° C. It is also soluble in alcohol and in glycerin. The drug was employed in a wide range of cases, in doses of from 7½ to 22½ grains, up to 45 grains daily. In febrile cases it acts as an antithermic, the decline of temperature being attended with the disappearance of other symptoms, especially pain. In cases of neuralgia it acted as an anodyne, diminishing the hyperesthesia, shortening the duration of the individual attack, and often causing disappearance of the symptoms. The action of the drug was rapid and certain and was unattended with unpleasant effects. Its use is contraindicated when the stomach is empty and when secretory hyperacidity is present.

***The Treatment of Whooping-cough.***—ULLMANN (*Jahrb. f. Kinderheilk.*, B. 40, H. 1; *Centr. f. ges. Ther.*, Sept. 1895, p. 560) undertook to determine the influence of the treatment in the open air of children suffering with whooping-cough, as compared with treatment indoors. In one case the interval between the attacks of coughing averaged one-and-a-half hours in the open air and forty-eight minutes indoors. In another case the child coughed one-and-a-half times and in a third two-and-three-fourths times oftener indoors than out. In a further case observed for nineteen days it was found that the cough was twice as frequent during the day indoors as out-of-doors, and nearly as frequent during the day out-of-doors as during the night in well-ventilated apartments. Other good effects of the treatment out-of-doors were observed in the less intensity of the attacks, the improvement of appetite, the infrequency of vomiting, and the betterment in the general condition.

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SATURDAY, SEPTEMBER 28, 1895.


## *CONCERNING SPECIALISM.*

WE have lately been treated in numerous articles to criticisms of specialism in medicine, varying from placid censure of its most obtrusive extremes to violent denunciation of the very fact itself and of all its important illustrators. At first we were inclined to sing in chorus. The recent hypertrophy of specialism, the outrageous extremes to which certain exponents have driven it, especially in America, with our orifacialists, graduated tenotomists, female castrationists, ossicle-excisionists, and all the rest, have always loomed big before our eyes. Assent would therefore be an easy task, especially when the impertinent exaggeration of morbid extremists seems to delight in thrusting itself upon the attention, and insulting all sense of self-control with examples of manifest evil. It may, however, very properly be asked if there is no good to be extracted even out of things most woful. All evil has its uses—at least for purposes of warning.

The first and most obvious answer to the critics—we mean the critics *sans phrase*, the *delendo est Carthago* fellows—of specialism is that the contempt poured upon the greatest extremists does not apply to the vast majority of specialists. It is unjust to single out the maniacal hobby-riders and sneer *ex uno disce omnes*. All are not alike. The hobby-riders are few and exceptional; the preponderant majority do not deserve the strictures and are not affected by them. It is sheer nonsense to say that the great body of specialists know nothing of general diseases, that "a man who looks only into the ear cannot see far into the nose," that "they who view female life through the vagina will have little respect for the stomach," that the surgeon will cut rather than cure, and that for stricture of the rectum the oculist will apply glasses or snip eye-tendons. The people who say such things are cantankerous, and try to say sharp things instead of true things. Argument by epigram may be amusing, but, like government by epigram, it ends nowhere or worse than nowhere. The makers of *mots* never say the truth, only the error they impale. Their desire is not to instruct or to be honest, but to make people say, "How smart!" But if they wished to be truthful instead of supercilious, careful instead of captious, they would take special examples or at least types of extremism and pour upon them the vials or larger vessels of justifiable wrath, and not rain it upon the just and the unjust alike, thereby in themselves logically and literally illustrating the very indiscrimination of which they so bitterly complain in others.

The *tu quoque* argument is usually a weak one, but in the present contention it is exceptionally strong and convincing. There is not a specialist in the land but sees every day instances of mistaken diagnosis (and hence of treatment) upon the part of the general physician. What oculist, from examination of the eyes alone, has not pointed out to the general physician the existence of hitherto unsuspected nephritis or circulatory disease? The aurist is constantly emphasizing the facts of ear-disease as a cause or medium of communication of septic cerebral disease, or as a result of respiratory abnormalism. The daily rehearsal of tragedies in the specialist's office, plainly due to errors in diagnosis of the general physician, is pitiable. "My doctor told me my headaches were due to congestion and anemia, and never to let any oculist meddle with my eyes;" "he didn't tell me to have my teeth looked after;" "he didn't examine my urine, although I've had pain in the back for a year;" "he didn't examine my sputum, although I've had a hacking cough for a long time," etc., etc. We do not mean, nor do we think, that the general phy-

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sician makes more errors than the specialist; we mean that the specialist is not the only medical sinner. It is our conviction that the average specialist is as much alive to the symptoms and importance of systemic disease as is the average general physician, and certainly no one would deny that he is also as much alive to the abnormalisms of special organs *other than those of his specialty*. We sharply emphasize the word *average* as applied to both classes. A recent diatribe against specialism tirelessly reiterates that the present-day variety is empiric. The charge is, of course, too true of all medicine, but to say that is particularly true of specialism rather than of general practice is topsy-turveyism and squarely opposed to a proper reading of the facts. What is the very stronghold of empiricism, what the enemy that the most extreme specialism is heroically fighting to carry by storm —what but general therapeutics?

But if, as vehemently averred, the specialist is the superficial empiricist and faddist, why does the general physician not annihilate him? Why, instead of annihilation, does he encourage the ever-increasing custom of sending the specialist his patients to treat for their special diseases? The specialist's fate lies at the disposal of the family physician. Without reference-cases the specialist would soon languish and die his supposably deserved death. A homely saw says, "The proof of the pudding is in the eating." Is it not plain that the family physician is learning that the specialist has his uses, that he has special ability and excellence gained by special application and experience, and that in our day of the infinite division of function and profundity of research he must often be called in to supplement the general therapeutist? Has the family physician not learned by bitter experience that never again can one mind encompass more than a small fraction of the knowable, and that his duty to his patient is henceforth to learn where and of what nature is the root of the evil, and, beyond a certain range of ailments, he must advise consultation with the specialist?

There still linger about the fringes of our scientific world some wonderful specimens of an antediluvian age, strange stranded relics of megalosaurean vanity, or of slimy avarice—the quacks—we mean those within the profession—who "treat all diseases," they who "turn no patient out of their own office." Heaven help them—or, rather, help their patients! In the meantime, heaven not helping, the "empiric" specialist must patch up the bungler's work as best he may after the "all-round man" has finished with his ignorance and mistakes. It is simply maudlin nonsense to contend that any one mind can longer compass or master all branches of medical science. It is painfully evident that any one specialty demands the most devoted application of the very best mental ability and training in order to keep abreast of the giant-progress of the time. The inevitable and ruthless march of scientific progress has divided and will continue to divide the practice of medicine into departments or specialties. There are undoubtedly unfortunate aspects and results of this subdivision of work; they are most glaring as well in other sciences as in medical science, but the law, *divide et impera*, is as predestined and inobviable as gravitation, and to rail at it is utter fatuousness. It is wiser to guide it rightly and utilize it shrewdly.

All critics say the specialist should enter upon special work only after thorough training in general medicine, and that is true; but it goes without saying, and in its final analysis it means that the schools must give a far more thorough grounding in general medical essentials than they do. If it means that every person must practise general medicine for ten years before taking up a specialty —then there is something to say on both sides of the question. We are unable to see how the delivery of a thousand women or the treatment of five hundred cases of typhoid fever can much help one to be a better aurist, or bacteriologist, or ophthalmologist. It is easy to demand much of the young physician, ambitious, short-lived (*ars longa, vita brevis*), and eager to be at his real life-work. He certainly should be consulted a little about it all. The advice savors a little of the old maxim about learning to swim without going near the water, or in another aspect it looks like advising an *experimentum in corpore vili;* but mistakes in specialty-practice are hardly more expensive than those in general practice. We are not advising the young graduate to plunge into a specialty at once; we are contending for the due weighing of circumstances, ability, training, and all that.

And what does one mean by specialism? Where will one draw the line? Should every family physician be also a surgeon? Assuredly not! It is simply impossible. It is to-day truer than ever that no man can serve two masters, much less a dozen

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or two. Should every physician rely upon his own judgment as to refraction? Should he treat obscure aural diseases? Should he be his own bacteriologist? Not in any case if he have a particle of modesty, or honesty, or interest in his patient's health.

Beyond all question and despite all abuses, the rise of specialism has been the condition of medical progress. How many thousands, nay millions, of people are there to-day blessed with ocular health and ability to carry on the duties of civilization by reason of the work of Graefe, Helmholtz, Donders, and their followers. Would any of the discoveries in ophthalmology and their applications have been made without the specialist? What has revolutionized surgery but specialism? What is now revolutionizing all medicine but the work of the specialist in bacteriology? Has there been a single great discovery in modern medicine that is not the work of the specialist, or of men who, if living, would to-day be specialists? Is specialism not the absolute *sine qua non* of promised discovery in the future?

Finally, mark it well, the family physician is now quite as much a specialist as anybody else, and this whole pother of discussion is a mere meaningless war of words and misunderstandings. The general physician does not treat more diseases, perhaps even less, than the physician who confines himself to a single organ. In the progress or process of subdivision the generalist has become the veriest specialist. Moreover, almost every disease has or may have its effects upon every special organ, and no specialist who ignores general diseases, and diseases of other organs, will henceforth be able to hold "the pace" set for him by his broader-minded and more comprehensive rivals. Thus the evils of specialism—evils that we acknowledge and deplore—are in a fair way of curing themselves. The way as advised by high authorities should not be backward, but on through! Specialists will not, cannot renounce their peculiar work, and become general physicians; science and humanity cry out against such an absurdity; and the way through is the right way. The specialist is already becoming the general physician in the sense that he knows the limits of his own knowledge, and does not try to do what he cannot do, but advises consultation with those who can and who do know. This also the specialist family-physician is fast learning, and so he is broadening also into general practice, and no longer puts "drugs of which he knows little into a body of which he knows less, for a disease of which he knows nothing."

Theoretically the essence of the controversy and of the whole matter consists in the attainment of the vantage-ground of accurate knowledge of at least one organ, and of the diseases of that organ. From this standpoint one cannot worse but better survey the whole field of medicine.

But the practical lesson of it all is that every one —*i. e.*, every "specialist"—shall learn to confine himself to the work he is competent to do, and beyond that to advise consultation with others more competent to treat certain organs or diseases; and the advice to consult the specialist family-physician has been, is, and will remain that very frequently given by his co-worker in other specialties.

## EDITORIAL COMMENTS.

***The Culture-test in Diphtheria and the Question of Quarantine.***—The examination of the throats of persons convalescent from diphtheria has revealed the presence of the Klebs-Loeffler bacillus even as late as three months after all clinical manifestations of the disease had ceased. In the majority of cases studied the bacilli have been found virulent up to the fourth week of the disease. Not only in persons who have just recovered from an attack of diphtheria, but also in the throats of nurses and caretakers virulent bacilli have been discovered in the absence of the least symptom of disease.

Hitherto it has been the custom in Philadelphia among officials who have to do with contagious diseases to fumigate the premises of persons suffering with diphtheria as soon as the attending physician pronounced the patient able to leave his room, and the physician usually allowed this when the membrane had disappeared from the throat and the individual seemed in good health. The placard was removed forty-eight hours after fumigation, and though children were kept out of school for two weeks longer, they were allowed to mingle freely with their comrades and relations.

Since the inauguration of bacteriologic laboratories and the use of culture-tests, fumigation has been delayed in such cases in which cultures have been made, until the bacilli are no longer found; the placard is left for the same period of time, and the patient is confined to the house and isolated from the other children.

In a large, roomy house, with garden-space, prolonged confinement of a healthy child can hardly be considered a hardship, either for the individual or his family; but for the poorer classes, who occupy seldom more than three rooms, and whose families are usually large, isolation for a period of from four to six weeks is not only difficult of execution, but is also a very serious matter for the little patient. Yet just here the quarantine is most needed, because the street is the playground of the poorer children, the contact with playmates is close, and children are numerous. It is difficult to make the parents understand that the danger is not yet over when

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the child seems to be in a perfectly healthy condition, and they will be less rigid in maintaining a quarantine.

Unfortunately but a small number of the cases of diphtheria that occur in a city are submitted to the culture-test; and as the Board of Health of Philadelphia at least accepts the attending physician's statement that the house is ready for fumigation, the children of one family may be allowed to leave the house two weeks earlier than the children of another family, living, perhaps, in adjoining houses, simply because no cultures were made in the one case and were made in the other.

The neighborhood will soon discover that the first doctor dismisses his cases much sooner than the second, and will, of course, sound his praises above the other. The children of the former will be able to attend school two weeks earlier than those of the latter, the new rule or Act of Assembly simply stating that a period of thirty days shall elapse "after the discharge by recovery or death of the person last afflicted" and "the thorough disinfection of the premises," and as disinfection of the premises does not occur in culture-cases until the bacilli have disappeared, the thirty days date from the end of such time.

The intent of the law evidently was to exclude all cases until the danger of infection was past; if by bacterial examination the danger is proved to be over, then surely the purpose of the law is fulfilled and the child should be allowed to enter upon his school-duties.

The proper thing to do, it seems to us, would be to require the culture-test in all cases, and to refuse to raise the quarantine until the bacilli are no longer found present.

This would put the matter on a scientific basis, and would not allow those physicians who make use of the test to be placed at a disadvantage for doing so. If this were carried out, the accommodations at the Municipal Hospital would probably have to be increased, as more children would be sent there, owing to the impossibility of effective isolation in private houses for so long a time, whereas at the hospital the convalescent children have the use of the grounds and porches, and therefore do not suffer because of their confinement.

In the therapeutics of diphtheria much attention will in future have to be paid to expelling the bacilli in as short a period of time as possible. In the July and August numbers of the *American Journal of the Medical Sciences* Dr. F. H. Williams reports the results of investigations in this direction, and claims to be able to cause the bacilli to disappear from the throat on or before the nineteenth day of the disease. The antitoxin-treatment has not as yet been shown to have any direct influence in shortening the time of residence of the bacilli, although the membrane usually disappears earlier with its use. The bacilli persist after the membrane has left, and they may be present without the formation of membrane.

In justice, therefore, to the community, to the patient, and to the doctor, we repeat that the Health-Inspector should require a culture-test in every case before raising the quarantine; otherwise those who make use of this test will be unfairly discriminated against. Apartments occupied by diphtheria-patients could be disinfected and fumigated as heretofore, but the placard should remain and isolation continue until the bacteria can no longer be detected.

***As Others See Us.***—It is not given to any but rare and beautiful minds to speak such delightful words of his own profession as those uttered by DR. C. ELLERY STEDMAN, of Dorchester, Mass., in his altogether admirable address to the Norfolk District Medical Society last June, and published in the *Boston Medical and Surgical Journal* of August 22d. The way we are looked at by the public, "the People with a large P," the taunts, deserved and undeserved, we have to bear, the answers we might or should make thereto—these things are touched upon with a combination of wit and pathos, a hand as light and yet as firm as that of the Autocrat's own. We had almost expressed the thought, or the wish, why does he not take up the Autocrat's function? For example, is not this a gem?

"One of our best men, whom all of us respect and many of us love, was called to a young woman in one of his families, and to his vast surprise found the maiden—whom he had known from her birth—in the throes of a miscarriage. After scolding briskly for some minutes, he proceeded to relieve her of her chorionic encumbrances. As he worked red-handed an aunt came in, and rising to the situation, exclaimed, 'So you *are* in the business after all.' The rage of the good-hearted and honorable man may be fancied. He now devotes himself to the infernal gods if he ever attends a woman in that trouble again; and if he finds himself caught at the bedside, he abandons the case."

We regret that we cannot quote the whole address. These are the closing words:

"I believe there are none whose work is of better quality or more conscientiously done than that of the general practitioner, who represents the body of the profession. It ill becomes those whom they serve, to doubt their capacity or to depreciate their work. The doctor may scold, he may even swear when he turns out of his warm bed of a cold night; but he turns out, he plods or drives through the snow and the mud and the cold—too often for no other remuneration than the glow of satisfaction if a knotty diagnosis be cleared up, or if remedies have steered Nature into a safe port. All over the world are men in laboratories, in the dead-house, in the hospitals, in the hovel, striving to wrest her secrets from Nature, satisfied if, after days and nights of toil, they may elucidate one point—forge one link in the chain of evidence that shall establish a truth or expose an error. They live among the dead and dying, in an atmosphere charged with disease and death; and, as Dr. Holmes says, 'They have tasks to perform which the chambermaid and the stable-boy would shrink from undertaking.'

"Yes, we are ignorant; but it is not because the way to knowledge is closed or unfrequented. The old roads are thronged with travellers; and new ones are opened every day, in which one timidly steps at first, another enters and goes farther on the path, more join them, and soon there is a crowd which thickens and presses on. Nature hides her jewels deep; and we must sweat and dig and bore and wash before she will yield her treasure. Much can be told of what has been done, but that is just the line of thought which we avoid to-day.

"To sum up—needless though it be to say it to this company—let us reflect that it is easy to give offence even when we least intend it; that even on the low ground of self-interest we prosper when we keep to the straight path; that in dealing with those not of our own communion, whatever they may do, no one of us can afford for one moment to forget that he is a gentleman. If we are told we do not know much, we confess it with shame and confusion of face; but we know as much, if not more, than those whom we pay for working for us.

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We do our best work when no one is watching us; and—thank God!—ours is the only profession that at any time does its work for nothing."

*Yale University Medical School.*—In commenting upon the subject of medical education in the United States in THE NEWS of August 31st, p. 246, we took occasion to say that Yale University was one of the four-year medical schools. We find, however, that we rested under a misapprehension. The corporation has lengthened the medical course to four years, but the change will not take effect until the fall of 1896; in the meantime this year's marticulants may graduate in 1898. The explanation given by the dean for the existing state of affairs is that the corporation of the University could not be assembled in time to take action on the recommendation of the medical faculty to extend the course at once to four years. The reason given seems to us quite inadequate and will not at all redound to the credit of the school. If a university of the standing of Yale allows a mere technicality to stand in the way of higher medical education, how can smaller schools be blamed for holding back.

*"Cellular Altruism" and "Physiologic History."*—For these suggestive and appropriate terms we are indebted to Professor S. H. Gage, of Cornell University, who used them first in his exceptionally able address as President of the American Microscopic Society (*Science*, August 23, 1895). We elsewhere reproduce a few scattered selections from the paper, regretting that want of space prevents us from producing it entire. From a veteran and practical physiologist and microscopist such clear statements show plainly the fast-changing attitude of science as to the more recondite problems of life. With Lombroso acknowledging his defeat, and a "degenerate" follower giving it the *coup de grace* by a personal *reductio ad absurdum*, we trust the anatomic and materialistic position of psuedo-science has reached its inevitable end, and that henceforth physiology and pure induction may be the order of the day.

## SELECTION.

### "PHYSIOLOGIC HISTORY" AND "CELLULAR ALTRUISM."

THERE is another fact in Nature that the microscope has revealed, and that fills the contemplative mind with wonder, and an aspiration to see a little further into the living substance, and so perchance discover the hidden springs of action. This fact may be called *cellular altruism*. In human society the philanthropist and soldier are ready at any time to sacrifice themselves for the race or the nation. With the animals the guards of the flock or herd are equally ready to die in its defence.

. . . . . .

Into the veins of the *necterus* was injected some lampblack mixed with water, a little gum-arabic, and ordinary salt, an entirely non-poisonous mixture. Thousands of particles of carbon were thus introduced into the blood, and could be seen circulating with it through the transparent gills. True to their duty, the white corpuscles in a day or two engulfed the carbon particles, but for several days more the leukocytes could be seen circulating with the bloodstream, and carrying their load of coal with them. Gradually the carbon-laden corpuscles disappeared, and only the ordinary carbon-free ones remained. Where had the carbon been left? Had it been simply deposited somewhere in the system? The tissues were fixed and serial sections made. The natural pigment was bleached with hydrogen dioxid, so that if any carbon was present it would show umistakably. With the exception of the spleen, no carbon appeared in the tissues, but in many places the carbon-laden leukocytes were found. In mucous cavities and on mucous surfaces, and on the surface of the skin, were many of them; in the walls of organs were many more apparently on their way to the surface with the load—that is, the carbon is naturally carried out of the tissues upon the free surfaces of the skin and muous membranes, where, being outside of the body, it could no more interfere in any way with it. But what was the fate of the leukocytes that carried the lampblack out of the tissues? They carry their load out and free the body, but they themselves perish. They sacrifice themselves for the rest of the body as surely as ever did soldier or philanthropist for the betterment or the preservation of the State.

. . . . . .

In brief, it seems to me that the present state of physical and physiological knowledge warrants the assumption, the working-hypothesis, that life is a form of energy different from those considered in the domain of physics and chemistry. This form of energy is the last to appear upon our planet, last because more conditions were necessary for its manifestations. It, like the other forms of energy, requires a material vehicle through which to act, but the results produced by it are vastly more complex. Like the other energies of Nature, it does not act alone. It acts with the energies of the physicist, but as the master; and under its influence the manifestations pass infinitely beyond the point where for the ordinary energies of Nature it is written "thus far and no further."

It can be stated without fear of refutation that every physiological investigation shows with accumulating emphasis that the manifestations of living matter are not explicable with only the forces of dead matter, and the more profound the knowledge of the investigator the more certain is the testimony that the life-energy is not a mere name. And, strange to say, the physicist and chemist are most emphatic in declaring that life is an energy outside their domain.

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The sure way, it seems to me, is the study of structure and function together; the function or activity serving as a clue and stimulus to the investigator for finding the mechanism through which function is manifested, and thus give due significance to structural details which, without the hint from the function, might pass unnoticed.

This kind of microscopical study, it seems to me, may be well designated as Physiological History. It is in sharp contrast with ordinary histology, in which too often the investigator knows nothing of the age, state of digestion, or of fasting, nervous activity, rest or exhaustion. Indeed, in many cases it is a source of congratulation if he knows even the name of the animal from which the tissue is derived. Such haphazard observation has not in the past, and is not likely in the

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future, to lead to splendid results. If structure, as I most firmly believe, is the material expression of function, and the sole purpose of the structure is to form the vehicle of some physiological action, then the structure can be truly understood only when studied in action or fixed and studied in the various phases of action.

Indeed, if one looks only for form or morphology in the study of histology, the very pith and marrow is more likely to be lost.

[Professor Simon Henry Gage, Presidential Address, American Microscopic Society.—*Science*, August 23, 1895.]

## SOCIETY PROCEEDINGS.

### *MISSISSIPPI VALLEY MEDICAL ASSOCIATION.*

*Twenty-first Annual Meeting, held in Detroit, September 3, 4, 5, and 6, 1895.*

(Continued from page 336.)

DR. GEORGE W. CALE, of St. Louis, read a paper entitled

#### TWO SUCCESSFUL OPERATIONS FOR TRAUMATIC INSANITY.

He pointed out that insanity due to injuries of the head is of rather infrequent occurrence. In 2200 cases of insanity treated by Kiernan, 45 were of traumatic origin; while Hays records 61 due to the same cause out of 2500 cases. Schläger reports 500 cases of insanity due to concussion of the brain.

The case was reported of a carpenter, twenty-six years of age, with a good family history. No case of insanity or of serious nervous disease had ever been present in the family. In June, 1885, the patient received a blow from a club in the hands of a negro, the wound inflicted being midway between the fissure of Rolando and the external occipital protuberance, slightly to the left of the median line. It was treated as an ordinary scalp-wound, as it suppurated for three months. Four years after the inception of the wound the man complained of severe pain in the left parietal and occipital regions. In October, 1888, he was sent to an insane-asylum, where he remained sixteen months. His condition improved, he returned home, but he was again sent back to the asylum, where he was detained for five months. Four months later he was brought to Dr. Cale, who diagnosticated traumatic insanity, and advised operation, which was consented to. Recovery ensued.

The second case was one of acute mania following a trauma. In this also operation was performed and recovery ensued.

DR. WILLIAM FULLER, of Grand Rapids, Mich., related that he had operated in two cases of insanity due to traumatism, one in Montreal in 1870, after the patient had been discharged from an insane-asylum as incurable. When the dura mater was opened some serum escaped. A few days subsequent to the operation the patient was rational, but as soon as the wound closed the hallucinations returned. The brain was then punctured in two or three different directions, but with no result except to establish drainage. The man died two months later, and a post-mortem examination revealed a tuberculous abscess in the fissure of Sylvius containing about two teaspoonfuls of pus. The other case was due to syphilis, and was relieved by the removal of pressure due to that disease.

DR. J. FRANK, of Chicago, reported an interesting case of insanity in which he trephined, removing a large piece of bone. A piece of the brain, excised for examination, seemed to be healthy. The patient, after being in an insane-asylum for five years, made a complete recovery and took up the thread of life where she had left it. She continued in this way for one year, then relapsed. What was the reason of her recovery? In opening the dura there was a gush of cerebral fluid. Dr. Frank firmly believes that it is not the depression of the skull that produces the bad results, but that at the time of the injury there is a chronic inflammation of the meninges, or a slow inflammatory process, which throws out cerebral fluid. This fluid may be in the ventricles between the dura and the brain or in the tissues of the brain itself, and the theory of concussion held by the profession Dr. Frank believes to be erroneous. He has repeatedly made experiments on dogs by rapping them on the head and rendering them insensible, and immediately thereafter effusion was found.

DR. MAAS, of Detroit, stated that we are in the dark as to the exact cause of the insanity in many cases, and that there is evidently some vasomotor disturbance.

DR. F. MAAS, of Detroit, read a paper, which was largely a statistical one, in which he pointed out the comparative value of the medical and surgical treatment of appendicitis.

DR. WILLIAM E. WIRT, of Cleveland, read a paper on

#### THE USE OF DRY HEAT OF HIGH TEMPERATURE IN THE TREATMENT OF JOINT-DISEASES.

He cited a case of rheumatoid arthritis in which he resorted to this method of treatment. Great improvement in the motion of the joint and in the comfort felt by the patient followed. He also reported a case of rheumatism of a year's standing in which there was more or less fixation. He broke up the adhesions, made use of dry heat at a high temperature, up to 290°, and increased ease with which the patient could move the joint and relief of pain followed.

DR. CARTER S. COLE, of New York, read a paper entitled

#### ULCERS OF THE LEG; ALL CAN BE CURED.

Constitutional conditions that favor morbid states, or that return to a healthy state, should receive proper treatment, whether or not ulcers exist. For systematic purposes ulcers of the leg were designated, according to their appearance, as healthy, irritable, indolent, etc. In intractable cases thorough washing with soap and water and good scrubbing with a stiff bristle hairbrush were conceded first place. If the ulcer be inflamed, irritable, or painful, anesthesia may be required for this and subsequent steps. The next step is a thorough cleaning out of all soft granulations and the base of the ulcer with a sharp curet. The edges of the ulcer are freed from their attachment, and in many cases with a curved sharp bistoury the circumference is nicked at intervals of about one-quarter of an inch. If much hemorrhage follows, a pad of gauze wrung out of a 2 per cent. solution of carbolic acid is placed over the wound and a firm compressive bandage applied from the toes to the knee, the wound

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having previously been thoroughly cleansed with the carbolic solution. The dressing, when used, is allowed to remain for twenty-four or forty-eight hours, after which the ulcer will have become a simple one, and be amenable to treatment as follows: No further lotion is used. The wound is wiped with dry cotton, and over and completely covering it are placed strips of diachylon-plaster to protect the ulcer. Over the surgeon's plaster is applied a pad of sterilized gauze, held in place by strips of rubber adhesive plaster, or often simply by a bandage. Then a firm muslin bandage is applied from the toes to the knee, making equable compression. Bandaging should be carefully done. Sometimes two bandages three inches wide and eight yards long are used. The bandage is not removed unless it becomes loose or saturated with the discharge, or the leg becomes painful. In redressing the ulcer dry absorbent cotton is again used to cleanse the wound, and the steps detailed are repeated. Often after two or three dressings the bandage may remain from five to seven days without being disturbed. In some cases a thin scum forms on the ulcer, which must be removed by going over the surface lightly with a curet. With this treatment, in ordinary cases, about three weeks will suffice for the cure of an ulcer of even a dozen years' standing. In extraordinary cases as long as six weeks may be necessary.

DR. EUGENE FULLER, of New York, read a paper entitled

### HOW TO DIAGNOSTICATE SEXUAL DERANGEMENTS IN THE MALE.

He dwelt on the fact that in the majority of instances sexual derangements in the male are caused by pathologic processes in or about the seminal vesicles, and, further, that they accomplish their results by interfering with the mechanism of ejaculation. He called attention also to the fact that this side of the question has been almost wholly neglected by preceding writers on sexual disorders, who have devoted themselves largely to psychologic causes in this connection, the result being that the great majority of the profession associate sexual disturbances with some radical mental defect. Sexual derangements in the male should be diagnostically arranged in four classes: (1) Those dependent on seminal vesiculitis. (2) Those dependent on neuroses. (3) Those dependent upon primary mental disease or degeneration. (4) Those dependent on general malnutrition and debility. The order of this classification corresponds to the frequency with which these different forms of disease are encountered in practice.

When seminal vesiculitis exists there is generally a previous history of urethral or vesical inflammation, sexual abuse, and the like, all of which are agents tending to produce localized inflammation in the seminal vesicles.

The causes of the second class either inhibit or excite the sexual center by means of reflex nervous action.

The third class of causes includes the different forms of paranoia, in which the sexual sense exists in a perverted form.

The fourth class of causes is a small one. It includes individuals, generally young or middle-aged, who make complaint that they are capable of little sexual exertion, and that feelings of prostration and exhaustion result whenever coitus is attempted.

Reference was made to the different appearances that the varying grades of seminal vesiculitis present to the sense of touch, and attention was directed to the fact that in cases of extensive perivesiculitis involving both sacs an inexperienced examiner is liable to err in diagnosis, mistaking the condition for hypertrophy or inflammation of the prostate. It was pointed out that to become perfected in the feel of the seminal vesicles the finger needs as much practice as does that of the gynecologist in palpating the ovaries and tubes. To obtain the necessary practice the genito-urinary surgeon was advised to examine habitually in this manner every male case coming into the clinic until all normal and pathologic conditions can be fully appreciated.

DR. S. P. COLLINGS, of Hot Springs, Ark., read a paper on

### CHRONIC SEMINAL VESICULITIS WITH HEMORRHAGE.

He said that the usual cause of this trouble is the extension of gonorrheal inflammation from the prostatic urethra through the ejaculatory duct into the vesicle itself; at least there is usually a history of a former gonorrhea, with a chronic deep urethral trouble remaining. The vesicles are sometimes involved in very acute and severe gonorrheal inflammation, with or without the implication of the cord and epididymis. They may also be involved in tuberculous inflammation, although practically never primarily. A case has been reported in which after death the vesicle was found to be primarily involved. The most important symptom is the disturbance of the sexual function. The character and appearance of the seminal fluid are more or less changed. Its consistency is so increased at times that it is gelatinous. The diagnosis of subacute or chronic seminal vesiculitis would be difficult were dependence placed entirely upon the symptoms in reaching a conclusion. They are vague and, at times, misleading, except the appearance of blood in the seminal fluid, which, if thoroughly admixed, would at once indicate a diseased condition of one or both vesicles. It was recommended that if inflammation of the vesicles occurs in one whose urethra is strictured, the stricture must be cured before hope can be entertained of permanent results in vesical treatment.

DR. C. T. DRENNEN, of Hot Springs, Ark., read a paper on

### SYPHILIS AND ITS TREATMENT.

He spoke of the treatment of this disease in connection with the use and abuse of certain so-called antisyphilitic remedies. He said that from the most recent researches it is not possible as yet to form definite conclusions as to the usefulness of sero-therapy in the treatment of syphilis. But the reports are quite encouraging, and there is hardly a doubt that it possesses value in at least the tertiary lesions. Fournier believes the good effect to be due not to any specific, but to its rehabilitating influence upon the system.

It was pointed out that the hot water at Hot Springs was well known to exert an influence peculiar in its effect for good, and this resort constituted therefore a veritable Mecca for syphilitics; that the action of the water is eliminative, stimulating, and antiseptic, and that larger doses of mercury and potassium iodid can be given without harm, have been demonstrated by experience

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and observation; that its exact or specific action is unknown, and that its value is attested to by the multiplied thousands throughout the country are propositions that are incontrovertible.

DR. WILLIAM T. BELFIELD, of Chicago, described and presented an instrument for the purpose of securing asepsis in operations upon the bladder and prostate.

DR. THOMAS H. MANLEY, of New York, read a paper entitled

### THE ELEMENT OF VASCULAR COMPRESSION IN FRACTURE-TREATMENT.

He stated that the extent of damage borne by the vessels in a given case of fracture will primarily depend upon the degree and quality of force applied and the line of treatment adopted. In a series of experiments made during the past year on the blood and blood-vessels, under a multiplicity of conditions, in the lower animals under anesthetics, one question that Dr. Manley took pains to determine definitely was whether, as a general rule, the circulation of the distal part of the limb was retarded in cases of fracture. Without entering into detail as to the great diversity of vascular phenomena observed in a frog's webbing under the microscope after single, multiple, and compound fractures were produced, it will suffice to say that with but few exceptions, immediately and for a considerable period of time after the bone was broken, the circulation in the capillaries and the smaller arteries was completely arrested. In several it was found that for several days all of the smaller vessels were motionless, and in a few they so remained until the fractured ends of the bones united. These experiments were extended to the mammalia—the shafts of the limbs of pups, kittens, and adult dogs, of different ages and of various sizes.

DR. H. O. PANTZER, of Indianapolis, Ind., read a paper entitled

### THE SIGNIFICANCE OF FISSURE-FRACTURES OF THE ARTICULAR ENDS OF THE LONG BONES.

He reported a case of fissure-fracture involving the outer third of the head of the radius, having loose attachments to its body. Excessive callus had developed without effecting union. The splinter and the callus were removed, when reposition of the joint was easily attained. The crepitus felt at the first examination and the failure to find it again, it was thought, should have suggested fissure-fracture. When the first dressing was removed, the limb seemed to present a perfect condition and to promise full restoration. These prospects were changed as soon as passive and active mobilization was begun. The probability is that the attempts at mobilization for this kind of injury were made too soon, and that they were at least partially responsible for the subsequent unfavorable developments. The conclusion was reached that when undue painfulness and subsequent swelling, with no gain or even a loss of mobility, attend the efforts of mobilization after kindred lesions, further efforts at mobilization should be deferred. The possibility of a fissure-fracture should be considered in determining the diagnosis and treatment of all cases of joint-injury.

DR. E. W. ANDREWS, of Chicago, contributed a paper entitled

### IMBRICATION OR LAP-JOINT METHOD—A PLASTIC OPERATION FOR HERNIA.

He maintained that the principle of imbrication or overlapping the several aponeurotic layers of the abdominal wall may also enter into other abdominal operations to advantage. The present paper referred only to its use in inguinal hernia. Here it is to be employed to supplement and reinforce existing methods, without losing sight of their good qualities. While based upon the best modern, open method, and while confessedly an outgrowth of experiences with the Macewen, Bassini, Halsted, and similar operations, yet the carrying out of the imbrication-idea so far changes the technic as to make it as different from them all as they are from each other.

The interlocking or overlapping principle of uniting the musculo-aponeurotic layers of the abdomen has been an outgrowth of clinical experience with Dr. Andrews rather than of theory. He adopted it at first as an expedient in cases in which the Bassini operation seemed difficult and needed supplementing, but of late the value of the principle had seemed to him more and more evident, and he had used it in all his cases. The following conclusions were presented: Any successful method of radical cure of hernia must be a true plastic operation upon the musculo-aponeurotic layers of the abdominal wall. Cicatricial tissue and peritoneal exudates are of no permanent value; a large, strong flap is needed, of sufficient size to fill the internal ring, together with triplicate layers of aponeuroses; interlocking of the layers, giving broad surfaces of union; shortening of the anterior as well as the posterior wall of the canal, making them mutually supporting, and relieving tension on deep sutures; and ample protection of the cord.

DR. CHARLES A. L. REED, of Cincinnati, read a paper entitled

### FURTHER OBSERVATIONS ON THE RADICAL CURE OF RUPTURE BY THE INTRAPELVIC METHOD, WITH ILLUSTRATIVE CASES.

The method described differs from the several methods of radical operation now in vogue; differs, in the first instance, in the fact that it is intrapelvic, while the others—Bassini's, Halsted's, McBurney's, Macewen's—are extrapelvic.

The essential point of differences between Dr. Reed's operation and that of Bassini's consists (1) in leaving undisturbed the extremely tense fascia composing the anterior wall of the ring; (2) in leaving the cord in the position that Nature designed for it, entirely protected by the normal fascia; (3) in closing the internal ring on the inside of the pelvis and in protecting it by a strong peritoneal pad; (4) in avoiding the menace to virility arising from a transplantation of the cord, its possible constriction by an artificial ring of tense fascia, and its necessary investment by an inflammatory exudate; (5) in increasing the resistance of the parts by fortifying the fascia comprising the anterior wall of the ring, and by increasing and making permanent the obliquity of the cord within its normal canal.

The advantages of the operation consist in securing, by the unfolding of the redundant but attenuated median fascia, the formation of a column that, when consoli-

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dated by inflammatory adhesions, has a certain retentive and supportive power, the influence of which is of value in preventing recurrence. The anchorage of the recti in the median line destroys the retentive power of the wall.

DR. HENRY O. MARCY, of Boston, followed with a paper entitled

SURGICAL TREATMENT OF HEMORRHOIDS.

This paper was in the nature of a reply to the strictures cast upon the Whitehead operation by Dr. Edmund W. Andrews, of Chicago, in a paper read before the Illinois State Medical Society. Dr. Marcy believes that if, in the statistics given by Dr. Andrews, the names of the operators were mentioned, most of the disastrous results would be found to have followed the work of incompetent men. His results have been excellent in those cases in which he has performed the Whitehead operation, slightly modified by himself.

DR. JOHN RIDLON, of Chicago, read a paper on

CLUB-FOOT,

which he defined as a distortion of the foot in its relation to the leg. The simple and compound varieties of club-foot were dealt with. Nearly all of the congenital cases present the compound variety—equino-varus; a few present equino-valgus; rarely there is seen a simple calcaneus. Of simple equinus Dr. Ridlon had met with but a single instance, and of simple varus and simple valgus he had seen none. Of the acquired variety, simple equinus is by far the most frequently found; next in frequency is simple valgus, then equino-varus, calcaneo-valgus, equino-valgus, simple varus, and varus in one foot and valgus in the other. The acquired deformity occurs more than three times as frequently as the congenital form. The etiology of the congenital forms was next dealt with, as well as that of the acquired forms. Then followed the symptoms, diagnosis, and prognosis.

The treatment of club-foot is mechanical or operative, or both mechanical and operative. Both these measures were dealt with at length.

DR. E. E. TULL, of New York, read a paper on

VAGINAL CASTRATION,

in which he claimed for this method a lower mortality, a shorter convalescence, and a wider adaptability, as it may be employed in cases too weak for abdominal section.

DR. F. G. GRONER, of Grand Rapids, Michigan, read a paper entitled

A NEW PHASE OF CELIOTOMY.

He related a suit for malpractice which had just been terminated in Grand Rapids. The suit was commenced against a doctor some time ago, and was for $50,000. The defendant died, but the court held that the cause of action survived, and that the suit could be brought against the estate. The jury returned a verdict for $10,000. It was contended that there was no malpractice, and fault was found with the laws that permitted a suit against a doctor to survive his death, and be a menace to his widow and children. It was thought a remedy should be provided by the Legislature.

DR. J. FRANK, of Chicago, read a paper entitled

RESULTS OF FIVE YEARS' EXPERIENCE WITH INTRA-ABDOMINAL SHORTENING OF THE ROUND LIGAMENTS.

He related that since November, 1889, he had had the opportunity of performing this operation seventeen times, with only one failure, and without any deaths. In these cases the operation was performed for retroversion, prolapsus, and retroversion with prolapsus of the uterus.

The median incision is made a trifle lower than in ordinary celiotomy. The round ligament is caught up anteriorly with a sharp or a blunt hook, and is then held taut by an assistant. A small, full-curved needle threaded with fine silk is then passed through the loop of the round ligament and is brought back in the reverse manner through the other half of the loop. No portion of the broad ligament is included in any of the sutures. Too much stress cannot be placed upon this particular procedure of passing the needle through a part of the cord and not around it, for in passing the needle around the cord there is danger of strangulation, as the blood-supply and the nerve-supply would be thus entirely shut off.

About fifty per cent. of the cases have remained under observation since the time of operation, which, in some instances, has been as long as two years, and in all of these the uterus retains its corrected position. This operation should be performed in preference to any other in all cases in which the uterus is prolapsed or immediately falls back upon replacing it with a uterine sound, and in which pessaries and tampons afford no relief, clearly showing that there must be some force that does not permit the uterus to remain in its normal position.

DR. THEODORE A. MCGRAW, of Detroit, delivered the Address on Surgery. He selected for his subject

THE PRESENT STATE OF OUR KNOWLEDGE OF CARCINOMATA AND OTHER TUMORS.

He said that a comparison of the ideas that prevailed relative to these diseases thirty years ago with those the profession holds to-day would show a change that marks rather a clearer view of the nature of the problem than any actual gain in its solution. Before Virchow the subject of tumors and carcinomata was wrapped in greatest confusion. Tumors were divided and classified in that era according to their clinical histories. They were divided into the innocent, which were looked upon as purely local, and the malignant, which were regarded as due to dyscrasiæ, the seat of which is in the blood. Under the influence of the new cellular pathology faith in so-called dyscrasiæ was abandoned and supplanted by a new doctrine, which taught that tumors and carcinomata resulted ever and always from aberrations in cellular nutrition, development and growth. It may be said that during this time the energies of the profession, as far as tumors are concerned, have been confined almost solely to this channel. The most successful attempt to account for the origin of tumors and carcinomata was that of Cohnheim.

The arguments offered in defence of the parasitic theory of carcinomata are (1) the microscopic evidence; (2) the frequent occurrence of auto-inoculation, and the evidently infectious course of the disease in the human

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body; (3) the endemic occurrence of carcinomata in certain localities, and in rare instances in the same houses; (4) occasional successful inoculation of the disease in animals. The arguments against it are the many instances of hereditary tendency; the general failure of experiments of inoculation, and the fact that metastases occur, not through the transfer from one point to another of parasitic germs, as is usual in parasitic diseases, but by the transmigration of cells bearing the same characters as the cells of the original tumor, and the subsequent proliferation of the migrating cells; the fact that not only carcinomata but tumors of all kinds have a greater or less tendency to produce metastases; the tendency exhibited by embryonic remains and histoid tumors to become malignant.

Dr. McGraw closed by saying that physicians should be better instructed in the means of diagnosis and in the necessity of early operative treatment. And last, but not least, the laity could be induced to assist, not only by liberal contributions of means, but by that intelligent co-operation which would lessen the difficulty of collecting evidence and making post-mortem examinations and keeping the sufferers out of the hands of the quacks.

(To be concluded.)

## AMERICAN ORTHOPEDIC ASSOCIATION.

*Ninth Annual Meeting, Held in Chicago, September 17, 18, and 19, 1895.*

THE Society was called to order by the President, DR. JOHN RIDLON, of Chicago.

After the transaction of some routine business, the President delivered his address. He selected for his subject

### THE GROWTH AND PROSPERITY OF THE AMERICAN ORTHOPEDIC ASSOCIATION.

He said, if one thing more than another had been instrumental in bringing about the present healthful organization, it was a wisely framed Constitution and By-Laws and a strict adherence to their requirements. To become a member the candidate must be personally known by at least two members of the Association, who voluntarily nominate him for membership, and he must have a creditable record of orthopedic work either as a writer, a teacher, or a clinician.

The generous expenditure of practically the entire income of the Association in the annual publication of its volume of *Transactions* has played no unimportant a part in the development of the Society. In this regard there was urged upon the members the serious consideration of the publication of a monthly or, at least, a bi-monthly journal, which shall contain all the papers read and discussions held before the Association and abstracts of all other worthy publications upon orthopedic subjects, whether first appearing here or abroad. Such a journal could be issued at little, if any, increase upon the cost of the present *Transactions*, and in the hands of an enterprising editor could within a year or two be made almost self-supporting.

The address was closed with a tribute to the memory of Drs. Little and Detmold.

DRS. R. W. LOVETT and JOHN DANE, of Boston, contributed a joint paper entitled

### FLAT FOOT.

They submitted the following conclusions: 1. That the feet of the infant at birth are not flat; that a tracing made at that time resembles that of the normal adult foot. 2. That a body of fat develops under the arch which gives the appearance of flat foot for some years, and that at the age of four or five years this is absorbed. 3. That the carbon-tracing is not a perfect method of studying abnormalities of the arch of the foot, because it fails to detect the slighter abnormalities or to record pronation. 4. That the element of pronation is more constant than breaking down of the arch of the foot and may be entirely separated from the latter. 5. That the condition of pronated foot without breaking down of the arch of the foot should be recognized and not confused with flat foot. 6. That the treatment of pronated and of flat foot is the same, and consists in the use of proper boots, the application of a pad or plate, the stretching of the gastrocnemius muscle when it is shortened, and in the routine use of massage, and always of exercises to develop the muscles that hold up the arch.

DR. S. L. MCCURDY, of Pittsburg, read a paper on

### CONGENITAL ABSENCE OF THE RADII, WITH OPERATION.

He detailed the case of an infant five months old, born at full term after a normal presentation, presenting complete absence of the radii, with abnormal relationship between the bloodvessels and the soft structures of the forearm. Otherwise the child was perfectly developed. Operative interference was at first not advised, for the reason that no successful method had been invented. In the worst cases, in which there is much bony deficiency, the choice lies between amputation and doing nothing. Bardenheuer two years ago proposed a new method for the operative treatment of these deformities. His operation on the forearm consisted in replacing the defect at its lower part with bone, and thereby permanently correcting the deformed position of the hand.

By a longitudinal incision the distal end of the ulna and the carpus are exposed, and the first isolated from its attachments. The ulna is then split through its middle into a radial and an ulnar section. These are separated by allowing the carpal bones to come up between them. By means of a nail passed through each side the ends are fixed to the carpus. A plaster bandage is applied, and left on for four or five weeks. This operation is easily carried out. It has been performed by Bardenheuer three times, and the results in each instance were good, from both a functional and a cosmetic point of view. In all, the deformity was permanently corrected. The same principles may be adopted in the treatment of other defects. In cases of congenital defects of the tibia or fibula the same operation has been performed once for each variety. The best result was obtained with the fibular defect. In the case reported, operation was eventually undertaken, the desire being to adhere to the method described as nearly as possible. It was not possible, however, to follow the method. The soft structures, tendons, etc., were so much shortened that to attempt to shift the end of the ulna across to the center of the carpus would have been impossible except by a virtual amputation of the arm. To have split the ulna and wire the carpal bones between these ends

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would have been impossible. The only method was to sever the ulna at a point where the free end of the upper fragment could be brought to the semilunar bone. The semilunar was curetted and drilled, and after drilling the ulna the two bones were adjusted with silkworm-gut. It was necessary to divide the tendons upon the radial side of the forearm before the hand could be straightened. A number of arteries were severed and required ligation. The cut through the soft tissues was made obliquely across the forearm, beginning upon the dorsum of the wrist and passing upward and around under the forearm, the object being to allow the structures to slide upon each other. These were then sutured in the corrected position, thus avoiding the gap that would otherwise have been left after a cross-section. After dressings were applied the hand was put up in plaster-of-Paris. The wound healed by primary union. The operation was first performed on the left hand, and a second operation was planned for the right arm, but the patient died from pulmonary tuberculosis five months afterward.

A case was also reported of congenital deformity, with a decided history of a maternal impression. A woman, whose husband was a railroad-conductor, was startled, when about six weeks pregnant, by the appearance of a crowd of men carrying on a stretcher a man, whom she thought was her husband. She had a habit when startled or in grief of grasping the fingers of the left hand, including the thumb just below the knuckles, with the right hand. While the injured man was not her husband, the impression was imparted to her unborn child, and manifested itself in the peculiar attitude of the hand.

DR. A. M. PHELPS, of New York, reported a case of congenital dislocation of the shoulder-joint, and described an operation for its relief.

DR. JAMES E. MOORE, of Minneapolis, read a paper on

REMOVAL OF THE ASTRAGALUS FOR TALIPES VALGUS.

He said that the modern non-operative treatment of talipes valgus was so satisfactory that it is rarely necessary to consider operative measures. In acquired flat foot, several operations have been tried in extreme cases, and among them Ogston's, which has probably been performed more frequently than any other, although at present it does not seem to have any enthusiastic advocates. The scaphoid has been removed, but the operation has not been followed by flattering results. The case was reported of a woman, twenty years of age, who had cut the internal lateral ligament of the ankle when she was a child by stepping on a piece of glass. An examination showed that the uninjured foot manifested a natural tendency toward flat foot, and the injured member showed extreme flat foot, with the inner side of the great toe turned almost directly downward. The condition had grown gradually worse for some years, so that when the patient came under observation she had been obliged to give up her employment as a domestic on account of the severe pain produced by standing or walking. Chloroform was administered, with the hope of forcibly correcting the deformity. Owing to the extreme rigidity of the foot, failure was feared; so the patient's consent was gained to resort to a cutting-operation if it should be necessary. It was found impossible to overcome the deformity by manual force, and an operation was decided upon. The displaced astragalus formed the bulk of the deformity, and was the keynote of the trouble. This was removed through a longitudinal incision on the inner side of the foot, which could be immediately placed in a very satisfactory position. The usual surgical dressing was applied, and the foot held in proper position by a plaster-of-Paris bandage. The healing was prompt and satisfactory, and in about two months the patient began to walk. Marked improvement in the position of the foot followed. About one year after the patient began to walk the ankle, which was atrophied, had developed considerably. The result of the operation was more satisfactory from a practical than from an esthetic point of view. The patient still complains of some pain. When she stands much or walks more than usual the foot is somewhat swollen in the evening, but she is now at work. While she is in every way better than before the operation the result is not perfect, but it is hoped that eventually she will be quite well.

DR. JOEL E. GOLDTHWAIT, of Boston, read a paper entitled

TENDON-TRANSPLANTATION IN THE TREATMENT OF DEFORMITIES RESULTING FROM INFANTILE PARALYSIS.

Attention was called to the possibility of furnishing better mechanical attachments for certain non-paralyzed or only partially paralyzed muscles as a part of the treatment of infantile paralysis. A certain number of cases were reported with results that were most gratifying, and from which it appears not unreasonable to class tendon-transplantation with tenotomy and the other surgical procedures that have a place in the treatment of this condition. At the knee undoubtedly tendon-transplantation can be employed to advantage in a certain limited number of cases, and possibly at some of the other articulations, although the best results are to be looked for in those portions of the body where the tendons are well formed and lie superficially. The operation is not to be attempted upon the tendons of muscles that are wholly paralyzed, except possibly in rare instances, for the purpose of furnishing additional support of a purely tendinous character. It is conceivable that in the foot, for instance, if the tendons on the inner side are more atrophied and offer less resistance than those on the outer side, these tendons might be attached to the inner side, and thus increase the lateral support. This is merely a suggestion, however, not having been tried practically, and the benefit to be derived therefrom would undoubtedly be slight. There is also a question as to whether or not two atrophied tendons would unite firmly, although from watching the other cases it is doubtful if there would be any trouble on this account.

The best results from tendon-transplantation are to be obtained in cases in which one group of muscles has been destroyed, leaving the antagonizing or accessory muscles very little, if at all, impaired. Such a condition results in a definite deformity, which becomes more marked as age increases. The best illustration of this is to be found in the condition so commonly seen in the

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foot when the gastrocnemius and the muscles at the inner side of the foot have been destroyed, the peroneal muscles retaining their normal contractility. The result is a valgus which constantly increases, both from the muscular contraction and from the faulty mechanical position in which the weight of the body must be received upon the foot in walking or in standing. The same result is also seen in connection with the anterior muscles of the foot; the anterior tibial and the extensor pollicis so often being destroyed, the peroneus tertius and the extensor communis digitorum are the only muscles left for flexing the foot at the ankle. This also results in a valgus which steadily increases.

To correct these mechanical conditions and to use the non-paralyzed muscles to the best advantage, Dr. Goldthwait has operated upon four cases, providing new attachments for the tendons of the muscles.

The first case was in a young woman, nineteen years of age, who complained of trouble in the left foot. When nine months old she became paralyzed, the palsy partially clearing up, and leaving the foot very weak, so that walking had always been difficult. The difficulty had been growing worse and there had been considerable pain referred to the inner side of the foot under the inner malleolus. The left leg was an inch shorter than the right. There was marked atrophy of the left calf, and the foot was in the position of extreme calcaneo-valgus. In walking the weight was borne upon the inner edge of the heel, the anterior portion of the foot being turned outward at an angle of fully 40° with the normal axis of the ankle-joint. The posterior muscles were all paralyzed with the exception of the peroneus longus and brevis, and the tendons of these muscles, instead of lying in the groove behind the external malleolus, had been drawn forward, so that they rested on the outer surface of the malleolus near its anterior edge. With the tendons in this position, the action of the muscles caused extreme valgus and slight flexion at the ankle, instead of extension, as should be the case. The anterior muscles were practically normal, and, having no posterior muscles to antagonize them, their contraction caused such extreme flexion that the dorsum of the foot rested against the anterior surface of the leg.

An oblique incision four inches long was made, so that it crossed the tendo Achillis about an inch above its insertion into the os calcis. Through this wound the peroneal tendons were exposed and divided at the lower edge of the malleolus. The tendo Achillis was then freed and the tendon of the peroneus brevis passed under this and attached to the tendon of the flexor longus pollicis. The tendon of the peroneus longus was then attached to the tendo Achillis, after which the wound was closed and a plaster-of-Paris bandage applied, holding the foot extended in order to relieve the strain as much as possible from the sutured tendons. One month later a valgus-plate was applied, and this has been worn since.

The method of attaching the tendons to each other is of great importance, and unless they are firmly joined the benefit of the operation is lost. The tendon to which the attachment is to be made is split and the end of the severed tendon is drawn through this slit, and securely held by two quilted sutures, which are so placed that when tightened the outer tendon is spread out, furnishing a broad surface for union. In the case reported the valgus has largely been corrected, and what remains is controlled by the plate, so that the tread of the foot in walking is quite normal. As a fair test of the result the patient has during the last five months been doing general housework and has suffered no inconvenience from the foot.

DR. ROYAL WHITMAN, of New York, read a paper entitled

A STUDY OF THE WEAK FOOT WITH REFERENCE TO ITS CAUSES, ITS DIAGNOSIS, AND ITS CURE; WITH AN ANALYSIS OF ONE-THOUSAND CASES OF SO-CALLED FLAT FOOT.

He emphasized the importance of looking on the foot as a mechanism, and on the flat foot not as a deformity only, but rather as a weak or disabled machine. Attention was called to the fact that the normal foot is not only a support, but also a lever. If this activity or leverage be diseased or lost, the foot will be subjected to great mechanical disadvantage. Particular stress was laid upon the component elements which made up the weak or flat foot. These are (1) the improper distribution of the weight upon the foot because of the pronation or valgus; (2) the displacement of the line of strain by the abduction of the foot; and (3) secondary lowering of the arch.

The various predisposing and exciting causes of weakness were enumerated. The importance of the early recognition of the weakness and of the training of children, in order that future disability might be avoided; the importance of the proper shoe, in both childhood and adult life; and the treatment for the various grades of weakness and deformity were then discussed and illustrated by diagrams and casts.

In conclusion, the following points were emphasized: Flat-foot, in its surgical sense, is a compound deformity, of which the elements of valgus and abduction, the improper distribution of the weight and strain, are of vastly greater importance than the depth of the arch. The weak and flat foot can be cured, but only by the application of the simple principles that any mechanic would apply to a disabled machine whose structure and use were known to him; in other words, there can be no permanent cure of weakness and deformity unless normal function is regained, nor effective treatment unless it has this end in view. The term weak foot has at least this advantage, that it implies nothing that the student must unlearn; it is because of the misapplication and misapprehension of flat foot, and because of the associations that have so long obscured the rational treatment of the deformity, that the term is to be discarded.

DR. L. A. WEIGEL, of Rochester, N. Y., contributed a paper on

METATARSALGIA.

DR. ROSWELL PARK, of Buffalo, N. Y., read a paper on

THE DEFORMITIES AND MALFORMATIONS RESULTING FROM ACUTE INFECTIONS IN BONE.

He said that clinically there are three locations in which bone-infections are most commonly met with—beneath the periosteum, in the epiphyses, and in the diaphyses. From the pathologic side infections are of four main varieties: (1) tuberculous; (2) staphylococcous; (3) streptococcous; (4) pneumococcous. To these may be added rare instances in which other

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organisms are primarily or secondarily present. Of these, certainly the more common is the tuberculous form, whose manifestations are usually not acute. The other three may be grouped in a general way as pyogenic forms of invasion in which pus is practically invariably produced, providing that only sufficient time have elapsed. Allusion was made to the acute miliary tuberculosis of bone that corresponds in most essentials with similar invasion of the lungs. This variety is not quite so rapid in course as the pyogenic forms, and it may take two or three weeks to produce such destruction of the bone as to necessitate operation. It stands, therefore, in an intermediate position between the acute infections and the slower (usually the tuberculous) lesions. Nevertheless, it is sufficiently acute to demand prompt recognition, and when recognized it may often be relieved by prompt operative interference. The course of a bone-disease will depend first upon the location of the lesion, and secondly upon its character. In 30 cases observed by Kocher the disease occurred 13 times in the tibia and 11 in the femur. In 98 cases collected by Leucke and Volkmann the femur was involved 36 times, the tibia 34, and the humerus 11. Disease in the immediate neighborhood of the hip-joint is about five times as common as in that of the knee. Comparing epiphyses with diaphyses, and accepting Schede's 67 cases, it is found that of 28 cases in which the femur was involved, in half the disease was in the shaft and half in the diaphysis. Of 27 cases in which the tibia was involved only 9 concerned the epiphysis, and of 7 cases in which the humerus suffered 2 involved the epiphysis.

Necrosis concerns orthopedists mainly in that in many instances it produces a weakening of the bone that may lead to fracture, deformity, or curvature. Dr. Park has observed spontaneous fractures of necrotic bone; in one case a necrotic femur broke as he was lifting the patient upon the operating-table. Incidentally there is danger of carcinoma in some of these cases. Volkmann has collected 32 cases in which old and fistulous passages became the site of epitheliomatous changes, and in which carcinoma was the final result.

(To be concluded.)

## NEWS ITEMS.

*The Vermont State Medical Society* will hold its eighty-second annual meeting at Burlington, October 10 and 11, 1895. The program includes the following communications: Obituary of S. T. Brooks, M.D., by H. S. Browne, St. Johnsbury. Our Profession, by W. D. Huntington, Rochester; discussion, F. D. Robertson, St. Albans. Address in Medicine (Vice-President's Address), by F. F. Chaffee, Hartford; discussion, H. R. Wilder, Swanton. Cholelithiasis, by E. H. Martin, Middlebury; discussion, L. W. Hubbard, Lyndon. Intestinal Indigestion: its Dietetic and Rational Treatment, by William H. Porter, New York City; discussion, J. H. Jackson, Barre. Cases of Tuberculosis Treated with Tuberculin and Antiphthisin, by L. M. Greene, Bethel; discussion, J. S. Richmond, Windsor. Diabetes Mellitus, by F. C. Morgan, Felchville; discussion, G. E. Lane, Ludlow. President's Annual Address, J. H. Linsley, Burlington. Subject: Some Suggestions Concerning the Examination of Blood; discussion, J. H. Jackson, Barre; A. P. Grinnell, Burlington; and E. W. Shipman, Vergennes. Address in State Medicine, by C. S. Caverly, Rutland; discussion, O. W. Sherwin, Woodstock. Medical and Surgical Treatment of Appendicitis, by S. C. Gordon, Portland, Me.; discussion, L. M. Bingham, Burlington. Blood-stains, by J. N. Jenne, St. Albans; discussion, O. H. Pettingill, Saxtons River. The Relations of the Medical Profession to Certain Social Conditions, by Charles H. Cook, Natick, Mass.; discussion, F. R. Stoddard, Shelburne. The Border-lines of Insanity, by S. E. Lawton, Brattleboro; discussion, J. M. Clarke, Burlington. Address in Surgery, by J. B. Wheeler, Burlington; discussion, E. M. Pond, Rutland. The Prostate, Some of its Acute and Chronic Conditions, and their Treatment, by L. Bolton Bangs, New York City; discussion, H. D. Holton, Brattleboro. Treatment of Injuries of the Eye, by C. E. Chandler, Montpelier; discussion, George H. Gorham, Bellows Falls. Heredity, by O. G. Stickney, Barre; discussion, C. C. Smith, Gaysville. The Antitoxin-treatment of Diphtheria, by Edward R. Campbell, Bellows Falls; discussion, J. H. Hamilton, Richford.

*Suicide in Vienna.*—According to returns made by the Central Statistical Commission, the number of suicides in Vienna during 1889–1893 amounted to 1254—3.2 per 10,000 of the population. Among the corresponding returns of some other Continental towns may be mentioned Paris with 3.6, Brussels with 3.29, Berlin with 2.98, Munich with 1.98, and Breslau with 3.91 per 10,000 of population. During the seven preceding quinquennial periods 360 cases of suicide occurred in 1854–1858, 367 in 1859–1863, 565 in 1864–1868, 631 in 1869–1873, 1020 in 1874–1878, 1129 in 1879–1883, and 1196 in 1884–1888. Among 100 cases of suicide 77 were men and 23 were women. Adolescents appear to have every year more frequent recourse to this method of terminating their real or supposed miseries, the highest rate being registered at the age from sixteen to twenty-five years. Among 100 suicides 32.5 ended their days by hanging, 23.5 by pistol-shots, 22.4 by poisoning, and 5.8 by drowning. With respect to the poisons potassium cyanid was resorted to in 12.7 per cent. of the cases, caustic lye in 22.7 per cent., phosphorus in 26.1 per cent., and sulphuric acid in 7.2 per cent. As for seasonal distribution the proportions were: January, 8.5 per cent.; February, 7.6 per cent.; March, 8.9 per cent.; April, 9.1 per cent.; May, 10.5 per cent.; June, 8.7 per cent.; July, 8.1 per cent.; August, 7.2 per cent.; September, 7.4 per cent.; October, 8.3 per cent.; November, 7.8 per cent., and December, 7.9 per cent.—*Lancet*, Sept. 14, 1895, p. 704.

*The Revival of the Index Medicus.*—The following is a list of additional subscriptions for the *Index Medicus* received by Dr. John S. Billings from September 7th to September 24th:

Albany, N. Y.: Dr. Henry Hun.

Alhambra, Cal.: Dr. Milbank Johnson.

Ann Arbor, Mich.: Medical Department, University of Michigan.

Baltimore, Md.: Dr. Thomas S. Cullen.

Boston, Mass.: Dr. J. W. Elliot, Dr. R. H. Fitz, Dr. M. H. Richardson.

Cleveland, Ohio: Dr. William H. Humiston.

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Colorado Springs, Col.: El Paso County Medical Society.

London, Eng.: British Medical Association.

Louisville, Ky.: Index Medicus Club.

Nashville, Tenn.: Dr. J. H. Mills.

New York City: Dr. Robert Abbe, Dr. S. T. Armstrong, Dr. L. Duncan Bulkley, Dr. D. Bryson Delavan, Dr. Alexander Lambert, Dr. Robert T. Morris, Dr. Frederick Peterson, Dr. R. W. Taylor, Dr. W. Gilman Thompson, Dr. F. H. Wiggin.

Philadelphia, Pa.: Dr. John W. Croskey, Dr. Howard F. Hansell, Dr. John H. Packard.

Syracuse, N. Y.: Dr. Henry L. Elsner, Syracuse Academy of Medicine.

The total number of subscriptions equals 105. The additional 95 should be easy of attainment.

***An Army Medical Board*** will be in session at Washington, D. C., during October, 1895, for the examination of candidates for appointment to the medical corps of the United States Army, to fill existing vacancies.

Persons desiring to present themselves for examination by the board will make application to the Secretary of War, before October 8th, for the necessary invitation, giving the date and place of birth, the place and State of permanent residence, the fact of American citizenship, the name of the medical college from which they were graduated, and a record of service in hospital, if any, from the authorities thereof. The application should be accompanied by certificates based on personal acquaintance, from at least two reputable persons, as to citizenship, character, and habits. The candidate must be between twenty-two and twenty-nine years of age, and a graduate from a regular medical college, as evidence of which his diploma must be submitted to the Board.

Further information regarding the examinations may be obtained by addressing Dr. George M. Sternberg, Surgeon-General, U. S. Army, Washington, D. C.

***The Rush Monument Fund.***—Dr. George H. Rohé, Secretary and Treasurer of the Rush Monument Committee, announces that the sum-total of the Rush Monument Fund to date amounts to $3357.39. Among the recent contributions are the following:

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| Dr. Nicholas Senn, Chicago | $100 00 |
| Dr. Andrew Annan, Emmetsburg, Md. | 50 00 |
| Eastern Ohio Medical Association (through Dr. J. C. M. Floyd) | 10 00 |
| Medical Society, Wayne County, New York (through Dr. D. S. Colvin) | 10 00 |
| Dr. George M. Sternberg, U. S. A. | 10 00 |
| Dr. J. R. Buist, Nashville, Tenn. | 5 00 |
| Dr. George M. Gould, Phila. | 5 00 |
| Dr. Franklin B. Ferguson, Deer Island, Me. | 2 00 |
| Dr. George N. Acker, Washington, D. C. | 1 00 |
| Dr. John B. Hamilton, Chicago | 1 00 |
| Dr. W. H. Marsh, Solomons, Md. | 1 00 |
| Dr. Jacob L. Williams, Boston | 1 00 |

***Dr. Albert Leary Gihon,*** Medical Director of the U. S. Navy, having reached the age of sixty-two years, will be retired from the service on September 28, 1895, after a service of more than forty years, eleven of which were spent at sea and more than twenty-seven on shore. He retires with the rank of Commodore (Brigadier-General). Dr. Gihon was graduated from the Philadelphia College of Medicine and Surgery in 1852, and was Professor of Chemistry and Toxicology in that institution in 1853-54. He entered the navy in 1855 as Assistant Surgeon, becoming successively Passed Assistant Surgeon in May, 1860; Surgeon in August, 1861; Medical Inspector in November, 1872; and Medical Director in August, 1879. He has represented the medical department of the navy in many important scientific bodies, in a considerable number of which he has been honored with some official position. He has made numerous contributions to medical literature, the latest of which is a series of articles in the *Twentieth-Century Practice of Medicine.*

***John Collins Warren, M.D., LL.D.***—At the last commencement of Jefferson Medical College the honorary degree of LL.D. was conferred on Dr. John Collins Warren, Professor of Surgery in Harvard University.

***Albrecht Nagel,*** Professor of Ophthalmology in the University of Tübingen, died July 22d, at the age of sixty-two years.

## BOOKS AND PAMPHLETS RECEIVED.

Coal-mining and the Health of Colliers. By Simeon Snell, F.R.C.S. Ed. Excerpt from vol. xvi, Part I, of the Journal of the Sanitary Institute.

Clinical and Experimental Study of the Leukocytosis of Diphtheria. By John Lovett Morse, M.D. Reprinted from the Boston City Hospital Medical and Surgical Reports, 1895.

On Whooping-cough; its Great Fatality, and the Necessity for Isolation and Rest in its Treatment. By William W. Johnston, M.D. Reprinted from the Archives of Pediatrics, 1895.

Self-retaining Drainage Canula for Preventing Scar in Cervical Abscess. By F. M. Briggs, M.D. Reprinted from the Boston Medical and Surgical Journal, 1895.

Indian Medical Congress—Surgical Section. The Influence of Percivall Pott, Syme, Simpson, and Lister on Modern Surgery. The Address on Surgery, by Surgeon Lt.-Col. E. Lawrie, M.B., President of the Section. Hyderabad: Printed at H. H. The Nizam's Printers' Press, 1895.

Du Catarrhe Naso-pharyngien. By Dr. E. J. Moure. Extrait des Archives Cliniques de Bordeaux, 1895.

Wills Eye Hospital Reports, Vol. I, No. 1, January, 1895. Published by the Editorial Committee of Wills Eye Hospital, Philadelphia. Philadelphia: Printed by the J. B. Lippincott Company.

Fifteenth Report of the State Board of Health of Wisconsin, 1893-94. Madison, Wisconsin: Democrat Printing Co., State Printer, 1895.

Xanthorum Diabeticorum, with Report of a Case. By J. F. Schamberg, A.B., M.D. Reprinted from the Journal of Cutaneous and Genito-urinary Diseases, 1895.

Malignant Endocarditis. By William Pepper, M.D., LL.D., and Alfred Stengel, M.D. Reprinted from the University Medical Magazine, 1895.

Angina Pectoris. By Herman D. Marcus, M.D. Reprinted from the Medical Bulletin.

An Interesting Case of Rapid Speech-development in an Adult following Operation for Tongue-tie. By G. Hudson Makuen, M.D. Read before the Philadelphia County Medical Society, 1895.

The Use of Scissors in Excision of the Tonsils, with Reference to a New Instrument. By Arthur Ames Bliss, A.M., M.D. Reprinted from the Therapeutic Gazette, 1895.

Wisconsin College of Physicians and Surgeons, Milwaukee, Wis. Circular of Information for 1895-96.

The Medical Treatment of Cancer of Larynx. By E. L. Vansant, M.D. Reprinted from the Journal of the American Medical Association, 1895.

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# THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXVII. SATURDAY, OCTOBER 5, 1895. NO. 14.

## ORIGINAL ARTICLES.

### THE DIAGNOSIS OF LATE CASES OF MULTIPLE NEURITIS.

BY GEORGE J. PRESTON, M.D.,
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MULTIPLE neuritis in the acute stage, or in the early part of the attack, presents an array of symptoms so characteristic that an error in diagnosis is unwarrantable. In the late cases, on the other hand, especially those that are slowly improving, the diagnosis is often extremely difficult. The class of cases referred to in this paper are those in which the disease has existed for six months or a year.

In certain cases of multiple neuritis sensation may from the first be only slightly involved, and in all cases the sensory fibers regain their function long before the motor. In late cases it is the rule to find little or no disturbance of sensation, while at the same time motor paralysis may be very pronounced. It is most probable that the cause of this difference between motor and sensory fibers is physiologic and not pathologic, as there is no proof that the various pathologic processes at work, toxic or toxemic, would attack by preference or more violently the motor fibers. It is very common to find in ordinary pressure-paralysis little or no involvement of sensation, associated with more or less absolute motor paralysis, and in this case the only way in which the sensory fibers could escape would be that they run centrally in the mixed nerve. Some limited experiments upon animals made a year or two ago seem to show that in dogs and cats the motor and sensory fibers are irregularly distributed in the mixed nerve. Upon physiologic grounds it would be natural to suppose that sensory impulses would be transmitted more readily than motor along a bad conductor. Hyperesthesia is also absent in the late cases, so that a prominent feature of the affection under consideration, sensory disturbance, has disappeared.

All grades of motor paralysis may be present in these late cases, and the legs are involved to a greater degree than the arms, except in cases resulting from metallic poisoning. The paralysis, while usually symmetric, often shows marked differences in the degree of recovery. The deep reflexes are very slow to return, but they sometimes reappear while the paralysis still persists. The superficial reflexes are always present in the late cases, and are frequently not affected in the early stage, even although there may be a decided degree of anesthesia present. A marked feature of the late cases is muscular atrophy, which is commonly symmetric, but may be more pronounced in some regions than in others. A degree of ataxia is sometimes found which is out of proportion to the loss of strength. These are some of the confusing symptoms that contribute to the difficulty of a differential diagnosis.

From a purely clinical standpoint, and without any reference to etiology, there are three or four fairly well-marked types met with in the later stages of multiple neuritis: 1st, atrophic; 2d, paraplegic; 3d, tabetic. Cases not falling under any of these three divisions may be regarded as belonging to a fourth or mixed type.

The atrophic form is likely to be confounded with some of the varieties of chronic poliomyelitis, possibly with syringomyelia. In many cases it is simply impossible to determine whether the case is one of chronic poliomyelitis or of late multiple neuritis, without invoking the aid of history or awaiting the termination of the disease. The wasting of the muscles may be identical, even to the marked atrophy of the muscles of the hand; sensation has returned in the case of neuritis, the electric reaction is *nil* in both affections, and in both the deep reflexes are abolished. The following cases illustrate this form of the disease:[1]

CASE I.—D. G., a woman, aged twenty-five years, was first seen six months after the onset of the disease. From the patient's statement it was evident that the case had been diagnosticated chronic muscular atrophy and a hopeless prognosis given. The muscular atrophy was extreme, resembling that of a case of progressive muscular atrophy in the last stages. The woman had formerly weighed 200 pounds, but when first seen weighed about 100 pounds. The muscles of the face were greatly wasted, though not to the extreme degree as the muscles of the limbs and trunk. There was bilateral wrist-drop and foot-drop. The patient could not feed herself, and was unable to hold her head up or turn over in bed. There was a little blunting of the sense of touch, but no actual anesthesia. Electro-contractility was abolished to the faradic and barely perceptible to the strongest galvanic currents that

[1] Some of the cases related in this paper were described more fully in a paper presented to the Medical and Chirurgical Faculty of Maryland in 1891.

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could be used. The patient made a perfect recovery in about a year-and-a-half, confirming the diagnosis of multiple neuritis. It may be mentioned incidentally that upon her recovery she became so violently erotic that she had to be discharged from the hospital.

CASE II.—A woman, aged twenty-six years, presented extreme emaciation, with bilateral foot-drop and wrist-drop, and could not stand or walk without assistance. The reflexes were lost. This case was one of chronic lead-poisoning, white lead having been used as a face-powder.

CASE III.—J. P. McN., a man, aged thirty-eight years, presented wasting of the extremities, especially the lower, with inability to stand or walk. The reflexes were abolished, sensation was impaired and in certain regions lost, the muscular sense was wanting, and irregular pains were present in the limbs. The patient was discharged cured.

Physical examination in these three patients disclosed, with some slight exceptions, a fairly typical picture of chronic muscular atrophy, and it was not until a minute history was obtained and carefully weighed that the diagnosis of late multiple neuritis was arrived at and practically confirmed by the complete recovery in each instance. It is more than probable that progressive muscular atrophy and chronic multiple neuritis are often mistaken for each other, or rather that multiple neuritis in the later stages of the disease is often mistaken for chronic poliomyelitis. There is no pain and no anesthesia in the late cases, or if these symptoms do exist they are so slight as not to attract attention. If marked anesthesia be present, it is a most valuable diagnostic sign. The electric reaction has not in my hands been of any great service as a means of differentiation between the two diseases in question, as electro-contractility has practically disappeared in both in the later stages, or in either case certain groups of muscles may be found that respond to one of the currents. In this connection I would like to add my testimony to the statement recently made by Remak, that sluggish contractility is a more frequent and reliable sign of degeneration than the polar changes so long regarded as classic. In speaking of the atrophic type of neuritis only cases of general, widespread disease are meant, not cases of irregular poliomyelitis or of limited neuritis.

The second class is the tabetic form or type of multiple neuritis. It not infrequently happens that at the onset of the disease the arms are but slightly involved, and later in the course of the affection the disturbances of sensation and altered reflexes are confined to the lower extremities. So closely do these symptoms resemble those of locomotor ataxia that this form of neuritis is spoken of as pseudo-tabes. There is an absence of girdle-sensation and of lightning-pains, though I have recently seen two cases in which there were neuralgic pains of a fugacious nature. Optic neuritis or atrophy rarely if ever occurs and marked pupillary changes are not common. I have seen the Argyll-Robertson pupil once in a well-marked case of multiple neuritis. The bladder and rectum escape in neuritis and the trophic changes do not correspond to the well-known joint-affections of true tabes. Loss of power is, of course, much more marked in neuritis than in the first or second stage of tabes. I have never been able to note the great difference in the gait of the two affections, a point somewhat insisted on by Charcot. When the foot-drop is pronounced, of course the gait will be characteristic; but in the majority of cases of this type the paralysis is very slight and the gait is incoordinate, resembling that of tabes very closely. The following cases will illustrate the similarity in symptomatology between tabes and the tabetic form of neuritis:

CASE IV.—A man, aged forty years, was first seen by my assistant, who made a diagnosis of tabes. There were moderate ataxia, absolute loss of the deep reflexes, slight impairment of sensation, with sluggishness and contraction of the pupils. There was an indistinct history of pains, but no girdle-sensation, no interference with the bladder or rectum, and retention of sexual power. A diagnosis of late neuritis was made, which was confirmed by the subsequent course of the disease, and also by obtaining a more accurate history of the earlier part of the attack, the man having been treated for acute neuritis at another hospital.

CASE V.—J. C., a man, aged forty-five years, presented the clinical picture of a case of alcoholic neuritis, with marked delusions and hallucinations. He complained of pain in legs; the knee-jerk was abolished; the pupils were almost insensitive to light, and but slightly active in accommodation. Ataxia was so great that for a month or more the patient could not stand or walk, though his strength was fairly good. There was slight anesthesia, and great impairment of the muscular sense. The man gradually recovered, with the exception of his mental condition, which was not improved.

CASE VI.—A man, aged thirty-eight years, had been in the hospital a year-and-a-half before, when a diagnosis of locomotor ataxia was made by a well-known physician. The patient, a very intelligent man, gave a history of pain, with loss of knee-jerk, anesthesia, and ataxia at the time the diagnosis of tabes was made. When seen a year after the acute attack there was slight loss of sensation in the lower extremities, with the knee-jerk present, though feeble.

CASE VII.—L. D., a woman, aged fifty-two years, presented pronounced ataxia, with loss of the knee-jerks, irregular anesthesia, Argyll-Robertson pupil, and normal discs. Improvement was rapid under treatment, the knee-jerks returning in the course of some months.

CASE VIII.—R. D., a man, aged thirty-four years, was seen only a few weeks after the onset of his disease. Ataxia was very marked, and the gait was

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characteristically tabetic. There was slight loss of strength in the legs. The knee-jerks were lost, and there was slight impairment of sensation. The eyes were normal, except that the pupils were sluggish. Electric examination showed slight reaction of degeneration. A week or two after the patient was first seen there appeared slight tingling and numbness in the hands. Improvement has been rapid, and the diagnosis of neuritis is now clear, though at first there was very considerable doubt as between peripheral and central disease.

In the cases illustrative of the tabetic type, just detailed, it will be noticed that the arms were not affected at all, or only very slightly. In all of these cases the loss of sensation was very much the same as that found in tabes. The deep reflexes were invariably lost in all. Ataxia was marked in nearly all. In one case there was Argyll-Robertson pupil, and in another an approximation of this symptom. The history elicited in regard to pain was uncertain, a fact not very uncommon in veritable tabes. In none of the cases was there a history of girdle-sensation, distinct lightning-pains, interference with the functions of the bladder or rectum, or loss of sexual power. In no case was there optic atrophy, and the trophic lesions were not suggestive of tabes. These negative points are of great value in making the differential diagnosis, but on the whole they are less important than the history of the case. The very fact that we have to rely so much upon the history, a notably uncertain factor, enhances greatly the difficulty of diagnosis.

The third type of neuritis is the paraplegic. It is a little doubtful whether we should regard the cases in this group as instances of multiple neuritis, except by taking advantage of the flexibility of the nomenclature. It is quite probable that in many instances the nerves of the upper extremities are from the first not involved in the inflammatory process. Possibly certain cases of double sciatic neuritis are to be included in this group. There are, however, many cases in which the history shows conclusively that in the beginning of the disease there was a general neuritis, leaving behind it a paraplegia, simulating very closely, in fact often indistinguishable from some of the varieties of myelitis. Sometimes the picture is one of lumbar myelitis; again that of the rarer diffuse myelitis.

Case IX was a man, aged about thirty-five years, whom I had seen a number of times, and without any very careful examination had regarded as a case of lumbar myelitis. When first examined there was paralysis of the lower limbs, with normal power in the arms, with loss of the knee-jerks, bilateral foot-drop, and some edema of the lower extremities, with an approach to glossy skin. An examination made some months later revealed returning knee-jerks, increased power in the legs, with irregular but limited muscular atrophy. A careful inquiry into the man's history elicited the fact that he had been suddenly taken ill a year previously, when he had fever, absolute loss of motion and sensation in all four extremities, with severe pain; and upon following up the case it was found that he had been treated at the University of Maryland Hospital for acute multiple neuritis.

Case X.—M. S., a woman, aged twenty years, was seen some months after the beginning of the attack. There was absolute loss of motion and marked loss of sensation in the lower extremities. The knee jerk was absent and bilateral foot-drop was present. There was a history of great pain in the legs, with gradual loss of strength and muscular atrophy. These symptoms followed a confinement, and may have been due to a myelitis, though the history pointed strongly to a neuritis. The case went on to a speedy recovery.

Case XI.—T. C., a man, aged forty-three years, had a right hemiplegia two years before admission into the hospital, but had recovered sufficiently to do heavy laboring work. In November, 1891, he was suddenly seized with pain in the right side, soon extending to the left, and followed by loss of power in all four extremities. When seen in September, 1892, ten months after the onset of the disease, he was unable to stand. There was very little loss of sensation, with almost complete loss of power in the legs. The arms were very slightly affected. The right side was worse than the left. There was marked atrophy in the legs and forearms. The deep reflexes were lost, the superficial preserved. The pupils were normal. The atrophied muscles showed reaction of degeneration. The patient was discharged, cured, in January, 1893.

The absence of vesical or rectal disturbance, of girdle-sensation, and of spinal tenderness, the temporary character of the anesthesia, in neuritis, together with the history of the onset and course of the disease, will generally enable the diagnosis to be made between multiple neuritis in the late stage and lumbar, or the rarer form, diffuse myelitis.

There are, finally, certain mixed cases that are often very puzzling; the resemblance may be more or less close to one of the three types already given, with certain important variations, or the picture may be a very composite one. All the symptoms, except certain limited paralyses, anesthesias, or atrophies, may have disappeared. All resemblance to the classic symptomatology may have vanished, and the picture that has been effaced by a gradual improvement of the various symptoms has to be reconstructed from very meager remnants. This is comparatively easy when the patient can give an intelligent account of the early period of the disease, or when the family-physician can be called upon to fill in the details; but in hospital-practice, with an ignorant subject, it is often a very difficult matter to obtain anything like a satisfactory history. Sometimes these cases will suggest syringomyelia; some-

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times one or the other forms of muscular atrophy; sometimes a monoplegia of central origin, or an affection of the cord.

The cases detailed—and many others could have been added—show how close the resemblance often is between late cases of multiple neuritis and various other diseases. Apart from organic affections, the question of hysteria will often come up, but there is rarely any difficulty in excluding it. There can hardly be any doubt that more mistakes are made in the diagnosis of these late cases of multiple neuritis than in any other one form of organic nervous disease. It is only by the most careful attention to the symptomatology, taken in connection with the previous history of the case, that anything like certainty can be arrived at. It is very important that the case be diagnosticated correctly, as even in the late cases of multiple neuritis proper treatment tends very materially to modify the course of the disease and hasten the recovery. From the standpoint of prognosis the recognition of the true nature of the affection is of even greater importance, as in the one case we can hold out the certainty almost of a cure, while in nearly all the other diseases with which multiple neuritis is likely to be confounded we can offer hardly a hope of improvement.

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## THE RELATION OF PELVIC DISEASES TO MENTAL DISORDERS.

BY ISABEL M. DAVENPORT, M.D.,
OF KANKAKEE, ILL.;
ASSISTANT PHYSICIAN AND GYNECOLOGIST TO THE EASTERN ILLINOIS HOSPITAL FOR THE INSANE.

THE subject of this paper has been suggested by the fact that out of a large number of female patients admitted to the Eastern Illinois Hospital for the Insane the cause most frequently assigned by the friends and attending physician is "pelvic disease." It would seem that physicians too often fly to this source as a cause, when in reality I am often surprised to find the pelvic organs in these cases in a fairly healthy condition. Only a short time ago I was called to see a woman who was suffering from an attack of acute mania. She had been brought to Chicago by her family physician, who was a man of apparent intelligence, for the purpose of having the uterus and ovaries removed, with the hope of bringing about mental recovery. Upon examination I found the uterus somewhat enlarged and some erosion of the cervix, with a small amount of mucopurulent discharge; but nothing abnormal about the ovaries and tubes could be distinguished—a condition frequently met with, and one that, while somewhat hard to control, is seldom considered serious enough to call for such radical measures, and that the attending physician would not for a moment have considered significant in any other case than one of insanity. In the absence of any history of hereditary insanity, however, he at once seized upon this favorite cause, and advised removal of the pelvic organs, when, as a matter of fact, the disease, being acute mania, the chances for recovery were good without any treatment, to say nothing of such radical measures.

I do not wish to be understood as being opposed to even the most extreme measures in these cases if there is sufficient cause in the organs themselves for the operation; for at the best I think a woman who is or has been insane loses nothing by removal of her uterus and ovaries, if for no other reason than that it prevents an entailment of her awful affliction on another generation. Indeed, when I see women who have returned to the hospital after the birth successively of several children, and see one member after another of a family committed to this hospital, I feel that it would be humane to castrate every woman who is insane. In the light of our present knowledge, however, no amount of pelvic or other physical disease will cause insanity if the conditions for this disorder do not exist in the brain; and yet we know that the sexual apparatus has a profound influence over the life of women. In how far these organs may act as a determining factor in producing insanity is an important question.

The gynecologist has a very useful place in the treatment of the insane in that it is possible to afford much relief and comfort to a class who cannot properly care for themselves; and by removing a source of nerve-irritation render the patient less irritable and restless; by being able to determine the condition of the bowels; in discovering injuries that are often self-inflicted; removing foreign bodies from the vagina and even from the uterus, and last, but not by any means least, by the mental effect upon patients who have been taught to believe that all their ills are due to uterine diseases, and in being treated for these they have confidence and courage to hope for recovery from their mental disorders.

This last is an influence extremely valuable to many, if not curative in itself. Within the past year I have received and attended five women who had undergone radical operations with the hope of recovery from insanity.

CASE I.—Mrs. L., an American of good family and social standing, forty-six years of age, and the mother of five children, gave a history of hereditary insanity. She has had three attacks of mania, the first occurring after the birth of her second child, the second after the birth of the youngest, and this last attack one-and-one-half years ago. She has been treated in two private sanitariums, and in June, 1894, the uterus and appendages were removed because of the presence of an intramural fibroid

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tumor of the uterus. The operation was followed by several convulsions, said to have been epileptiform, and also by paralysis of the right side. The woman recovered from these, however, but her mental condition being unimproved she was committed to the Eastern Illinois Hospital for the Insane in April, 1895, where she has continued unimproved; though, from the fact that her case is one of recurrent mania, she will probably recover, and being at the age for the menopause, the prognosis is good for continued mental health.

Case II.—Mrs. P., an American of good family, thirty-four years old, was married, but had never had a child. She gave a history of hereditary insanity, her mother having died of paretic dementia. The patient had always been delicate. Some years ago the tubes and ovaries were removed because of pyosalpingitis and a very erotic tendency, which was supposed to be due to the diseased organs. After recovery from the operation the woman had "queer spells," as the history words it, and became addicted to the use of opium, tobacco, and liquor, with no abatement of the abnormal erotic disposition. Indeed, she became very depraved, and after escaping from her friends and spending three weeks of fearful debauchery in one of the large cities, she was brought to us on June 1, 1895, in a state of acute mania, and she thus continues, unimproved.

An interesting fact in relation with this case is that the patient has continued to menstruate regularly since the operation, though her former physician, who is a reputable gentleman, says he knows to a certainty that the operation was perfectly done.

Case III.—Miss G., an American, thirty years old, of good family and unmarried, had had one miscarriage. From puberty she had been extremely irritable and erotic, at the menstrual periods especially. She had attempted homicide at these times. Some years ago the ovaries and tubes (which were healthy) were removed, with a view to removing the cause of her erotic and irritable tendencies, but notwithstanding this operation the woman continued in the same mental condition until June, 1895, when she voluntarily committed herself to this hospital. In examining her I found the heart enlarged, the apex being displaced downward and toward the sternum, with a harsh, blowing sound at the apex during the systole. I have not been able to learn whether this condition existed before the operation, or, as is sometimes the case, has developed since; but the patient says that she has flashes of heat preceding the irritable attacks, and the irritability is ascribed by her to these "hot flashes." It would appear that the condition of the heart was a sufficient cause for the irritability, which, however, has not manifested itself here, and the patient has been perfectly sane, quiet, and well-behaved since her admission. The abnormal heart-sounds and the hot flashes have become less frequent and severe under ten drops of tincture of digitalis thrice daily, and the patient will be returned to her home in another month if she continues well.

Case IV is that of a young woman recently admitted, who has had epilepsy since puberty, the seizures occurring only at the menstrual period. Her friends were advised that if she married and had a child she would probably have good health and the seizures disappear. This wise (?) advice was acted upon, and when, after the birth of the third child the seizures continued, they were advised to have the ovaries removed. This was done some six months ago, with no benefit, and the patient was then committed to the Eastern Illinois Hospital for the Insane. Now her friends have been told that if a slightly lacerated cervix (which is bound down by inflammatory adhesions) were repaired she would recover.

Case V.—Mrs. B., an American, thirty-four years of age, married and the mother of two children, gives an obscure history of hereditary insanity. She has suffered from an attack of puerperal mania from the birth of her youngest child, in September, 1889. The excitement is greatest at the menstrual periods. She has been an inmate of the Eastern Illinois Hospital for the Insane since December, 1891, during which time the best care that the hospital, with the addition of every aid that her friends (who are wealthy) could procure, had been given her without permanent benefit. The patient suffered from endometritis and an extreme lateral version, with shortening of one broad ligament, and as a last and proper resort her friends wished the operation of ovario-hysterectomy performed. They were advised that her physicians could not hope for benefit from removal of the organs in question, but that there was a bare possibility that the shock produced by so severe an operation, the long-continued rest in bed, and the depletion from loss of blood, with the effect of the anesthetic, might prove beneficial.

In order that a physician who was a relative might perform the operation, and also from a sentiment that she might not die in a hospital for the insane, if she did not recover, she was taken to Chicago, and the operation successfully performed. In one month she returned and steadily grew worse, having been continuously noisy, profane, and destructive—in fact, more excited than she had been at any time after her admission, until on August 15th, when, after being given sulfonal to the point of narcotism, she suddenly became rational, and has continued so up to the present time, having now gone to her home on a visit. Whether or not she will continue well remains to be seen; but, owing to the fact that she had been given no treatment except that which had been given her repeatedly before, it would seem that the removal of the pelvic organs had certainly influenced her recovery to the present extent.

During the past four years Dr. George H. Rohé, Superintendent of the Maryland Hospital for the Insane, has operated for pelvic diseases in women upon thirty-four cases. I have at hand his report of twenty-two cases, covered by the years 1891 and 1893. The twenty-two cases have yielded the following results:

Puerperal mania—6 cases, with recovery in 3 and improvement in 1.

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Simple mania—1 case, with slight mental improvement.

Hystero-epilepsy with mania—2 cases, with recovery in 1; operation too recent in 1 to give the result.

Epileptic insanity—3 cases, with 2 deaths and slight improvement in 1.

Periodic mania—3 cases, with decided progressive mental improvement in all.

Paranoia—1 case, with slight but not permanent improvement.

Thus among 22 cases there was recovery in 5 and decided improvement in 7. An interesting fact is that the cases of recovery and decided improvement represented forms of insanity that appear to be strongly influenced if not caused by the sexual organs. On the whole, it appears that removal of the uterus or appendages is beneficial in some cases, and as there is no good and sufficient reason for the usual extreme conservatism of alienists in regard to radical operation in the insane, this conservatism (providing, of course, that there is a sufficient degree or extent of disease in the pelvic organs themselves) is depriving patients of a chance for recovery or improvement that they should have.

## OBSERVATIONS REGARDING EYESTRAIN AND ITS RELIEF.[1]

BY EDWARD JACKSON, A.M., M.D.,
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THERE is a common impression that eyestrain is simply and solely a result of ocular defects—that without some ocular fault there is no eyestrain; and that the discovery of some marked anomaly of refraction, or of the ocular muscles, is the one thing needful to establish the diagnosis of eyestrain; and the correction of that error of refraction or fault of muscular balance is the sole and sufficient treatment of the condition. There are too many physicians who, suspecting a connection between the eyes and a chronic headache, come to the ophthalmologist and ask if the patient has any error of refraction, expecting the answer to settle all questions of pathology, and a pair of glasses to sum up the treatment.

Now, as a matter of fact, ametropia of any degree may be altogether unattended with eyestrain, and eyestrain can exist without any ocular defect. Of course, in a great many cases the two are intimately associated. Ametropia is perhaps the most effective and most common predisposing cause of eyestrain; and the mass of cases of eyestrain present ametropia sufficient in amount to be practically important. Nevertheless, ametropia and eyestrain are distinct conditions. One sees every grade of the various forms of ametropia in persons who use their eyes without eyestrain, and typical severe eyestrain although the eyes may be free from defect.

If eyestrain and ametropia are not invariably connected, what, it may be asked, is their true relation to one another? Ametropia, fault of ocular focus, is one of several factors that by their cooperation may cause eyestrain. It is such an important factor that it should be carefully and completely studied in every case of eyestrain; but it should be remembered always that it is only one factor, and that other factors will in particular cases prove of even greater importance.

The various factors of eyestrain may be summarized thus:

*First.* Ocular defects, including ametropia, insufficient power of accommodation, and (rarely) faults of muscle-balance.

*Second.* Improper requirements in the way of eyework, including excessive hours of eyework, excessive minuteness of objects looked at, inferior illumination, imperfect adjustment of optic instruments, wrong position of the object, or wrong arrangement of hours of eyework and recreation.

*Third.* Defects of general nutrition, including chronic ill-health, the immediate and after-effects of acute specific disease, and diathetic influences.

*Fourth.* Imperfect organization of the nervous system or degenerative changes in it, including the influence of sudden changes in the amount or kind of eyework, and certain forms of senile decay.

These four classes include a host of individual causes which are to be borne in mind, and their relative importance carefully estimated in the study of a given case. Any narrower routine will at times result in unnecessary failure; but the narrower way of regarding the case is far too common. One needs constantly to remember that an ocular headache is not aggravated only by eyework; it may be aggravated, or even set up, by the recurrence of the menstrual epoch, by hunger, by anemia, by exhaustion of mind or body, or by the lowered character of the general nutrition after exhausting illness. And, conversely, it is not benefited merely by lenses or prisms, atropin, or the dark-room, but by sleep, food, tonics, and all wholesome influences. On the other hand, it is an error equally serious to assume, because a headache is benefited by a hearty meal, or a brisk purge, or rest from business, or a course of iron and strychnin, that eyestrain can have nothing to do with it. And the same is true of the other symptoms that we group under this general head of eyestrain.

The recognition of the broader etiologic relations of eyestrain cannot fail to exert an important influence on our methods of investigating and managing all such cases. For instance, when it is suspected that eyestrain is the central fact in the symptom-group,

[1] Read before the Colorado State Medical Society, 1895.

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other lines of study of the case will not be ignored, and the whole diagnosis, prognosis, and treatment founded on the results obtained with the ophthalmometer or the test-lenses. It will still be pertinent to look into the question of diathesis, the usual workings of the nervous system, and every possible influence bearing on the nutrition of the patient, as well as the amount and conditions of his eyework. Again, it is not essential for the general practitioner to have at his command skilled measurements of the refraction of the eyes before making a probable diagnosis of eyestrain. Whether the astigmatism is 0.5 D. or 5.D. will not in itself settle the matter. In either case the decision will rest as much on other evidence as upon this one fact. Eyestrain is recognized by the whole clinical picture it presents, not by a single feature.

To even a greater extent do these factors, other than the mere optic defect, influence the prognosis and the treatment. Age, especially as indicating the evolution or involution, present or prospective, of the nervous system, the tendency of the nervous system as regards habitual or recurrent pain; the state and prospects of general nutrition; the necessary requirements of occupation on the whole organism, as well as on the eye, must all be considered before an intelligent prognosis can be given. And while the removal of the single causative factor will relieve some patients, the proportion of those relieved will rise with the skilful combating of every adverse and depressing influence. Glasses may be of value or essential, but so may be readjustment of eyework, improved general nutrition, or the recognition of those bounds that the constitution of the patient sets on habitual effort.

The next point to which I would ask attention is that the intensity of the eyestrain is not directly proportional to the ocular fault that gives rise to it. The former may even seem inversely proportional to the latter. An ocular defect may give rise either to imperfect vision or to eyestrain, less generally to both. It is the higher degrees of ametropia that necessarily cause imperfect vision, while the lower, in which imperfect vision can be obviated by increased exertion, more commonly cause eyestrain. Then the prognosis as to the continuance of the symptoms complained of is the more unfavorable in proportion to the smallness of the ocular defect sharing in their causation. The factor of ametropia entering into the causation is the only factor that can be always and with certainty removed. In proportion as it is relatively small the share of the other factors less amenable to the measures at our command becomes relatively large, and our ability to give relief correspondingly doubtful.

Particularly after middle life do small errors of refraction or imperfections of adjustment cause severe and persistent strain. When the power of accommodation has so diminished that the correction of 1 D. of hyperopia is quite beyond its range, 0.25 D. of the same error of refraction may prove a constant provocation to painful effort on the part of the ciliary muscle, or an equal amount of inaccuracy in the adjustment of lenses may be equally injurious.

Another point worthy of attention is the complete difference in the effects produced by a perfectly accurate correction of ametropia, as compared with those due to a slightly inaccurate correction. The difference in relief given is often utterly out of proportion to the difference in the refracting power or axial direction of the lenses, but clinically the fact is well established. Perhaps it will help us to understand it to remember that if an emmetrope attempts to work with a pair of 0.5 D. concave lenses, the annoyance experienced is far greater than that usually felt by the hyperope with an error of 1.5 D. The ametropia proves more disastrous to the person not accustomed to it, and if one wears the wrong glasses the fault of focus that he has to contend with is always one to which he is not accustomed. If the inaccuracy be simply in the direction of a lower degree of the original fault, this may not be noticed if the ratio between the two eyes be properly preserved. Yet even then the result cannot be regarded as wholly satisfactory.

Finally, as regards relief of eyestrain through the wearing of glasses, let me call attention to the practical importance of the *period of adaptation* to the use of glasses. In nearly all works on the subject this period of adaptation is slighted or ignored. It is commonly stated that the wearing by young persons of convex lenses correcting their total hyperopia will at first cause blurring of distant vision, and sometimes it is mentioned that strong concave lenses may at first prove unsatisfactory for near work; but no adequate expression is given of the fact that nearly every pair of glasses adjusted, if they be adequate to the needs of the case, and of more than trifling strength, will at first cause discomfort and aggravation of some symptoms of eyestrain, or at least markedly less comfort than they will give when the eyes have become accustomed to working through them. It is a matter of the first practical importance that this period should be borne in mind, and the patient fully warned of its existence and characteristics. Some will remember the story of the African adventurer, who restored his imperilled influence over his native followers by calling them before him, placing on the tongue of each a couple of grains of tartar emetic, and solemnly announcing that they would vomit. According to the account of the native: "He told us we would vomit, and by Allah we did vomit. Great is the prophet!!" So if with the prescription of a pair of glasses full warning is given of the period of



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slight gain or increased discomfort, its occurrence will only stimulate confidence in the knowledge and frankness of the oculist, and help to secure a full and fair test of the value of the lenses; while the occurrence of the same train of symptoms, without any previous warning regarding them, has too often by destruction of confidence proved a disaster to both physician and patient.

## CLINICAL MEMORANDA.

### *PROBABLE SEPTIC PHLEBITIS OF THE LEFT SIGMOID SINUS.*[1]

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#### HISTORY AND NEUROLOGIC EXAMINATION BY DR. ESKRIDGE.

S. C. B., a white, married farmer, thirty-six years of age, born in Indiana, and living in Colorado a few months, was admitted to St. Luke's Hospital January 13, 1895. It was learned that the man's father had died at the age of sixty-two and was demented for ten years previous to his death. His mother was living and exceedingly irritable and nervous. One brother died of pulmonary tuberculosis and one sister had carcinoma of the breast. The patient's health in childhood was good and remained so until four years ago, when after exposure to cold he began to experience severe pain in the back and left side of the head, and this was followed a few days later by a discharge of pus from the left ear. The otorrhea continued for about six weeks. After this all pain subsided and the man was apparently in the best of health until December 24, 1894, when after exposure in the mountains he began to suffer from severe pain in the left mastoid region. Within a day or two the pain appeared in the ear proper, and on the third day from the beginning of the mastoid pain a discharge, consisting of blood and pus, took place from the ear. For several days after the discharge became free the pain was less severe, but instead there was a feeling of numbness and fulness in and around the ear, and for a period of about twenty-four hours immediately after the discharge began the patient experienced severe pain at the front and top of the head. From December 29, 1894, to January 4, 1895, through the day he seemed very quiet and was in a stupor most of the time; but during the night he became violent, emotional, and hilarious. He would laugh, sing, and pray, and make violent contortions with his face. During the two or three days after January 4th he was quite rational, but complained of constant pain in the region of the left ear. On January 6th he came to Denver, from a distance of one-hundred or two-hundred miles. Two days later he suffered from a severe chill, which was followed by a rise of temperature, and for the next five days he was said to have had from one to three chills a day.

I first saw the man in consultation with Dr. Stenhouse on January 19, 1895. I learned that on the previous evening the temperature had reached 105° after a chill. During my first visit, which was made about noon, the patient was suffering from a severe chill, and the temperature in the mouth was 102°. The chill lasted about an hour, and at the end of this time the temperature reached 104°. The man was said not to have perspired any after the chills from which he had suffered before I saw him.

Examination revealed the following condition: The patient was sallow, not much emaciated, but looked depressed. He complained of a dull, heavy pain deep in the left ear and just posterior to it. There was no discharge from the ear; neither was there any odor of an unpleasant nature about the patient. Slight tenderness was found over the upper left posterior cervical triangle and over the left mastoid region, but none in the region of the jugular vein. The knee-jerks were slightly increased; ankle-clonus was absent; the plantar reflexes were greatly diminished; all other superficial reflexes were absent; the deep reflexes of the arms were considerably increased. All general sensory phenomena were normal, as were all the special senses except hearing on the left side, where the watch could not be heard through the air or the bones. The tuning-fork was heard better with the right ear. Percussion over the left mastoid process gave rise to an uncomfortable sensation, but to no distinct pain.

Immediately on admission into the hospital, at 2.30 P. M., Dr. Edmund J. A. Rogers saw the patient in consultation with me. The history of the subacute ear-trouble, the suppression of the discharge from the ear, the repeated and prolonged chills, lasting from one to two hours, followed by a rise of from four to seven degrees in the temperature, the pain and slight tenderness in the superior posterior cervical triangle, the pain in the left side of the head in the mastoid region associated with the affected ear, and the man's depressed condition and sallow appearance pointed to septic infection, most probably of the left sigmoid sinus. There did not seem to be any evidence of meningitis, and we had not watched the case sufficiently to enable us to form an opinion in regard to the presence of cerebral abscess. We decided to give one-half grain of calcium sulphid every three hours. Iron, quinin, and strychnin, together with free administration of alcohol and an abundance of nourishing and digestible food, formed the treatment on which we mainly relied.

Dr. Rogers ordered the left ear to be irrigated with hot sterilized water for a period of ten minutes every hour. At 9 P. M., the temperature was 103°, the pulse 89, the respiration 20. The pulse was full, but not well sustained. At midnight the temperature was 100.6°, the pulse 77, the respiration 20. On January 14th, at 6 A.M., the temperature was 99.4°, the pulse 73, the respiration 20. The man had slept well during the night without a hypnotic. He had taken an ounce of whisky in six ounces of hot milk every three hours while awake since his admission, and was feeling much improved.

On January 14th and 15th the following observations were noted: '*January 14th*, 9 A.M., temperature 98.2°,

[1] Read before the Golden Belt Medical Society at Abilene, Kan., July 11, 1895.

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pulse 68, respiration 18; 12 M., temperature 97.4°, pulse 64, respiration 16; 3 P.M., temperature 98.4°, pulse 68, respiration 18; 6 P.M., temperature 98.4°, pulse 68, respiration 18; 10 P.M., temperature 99°, pulse 65, respiration 17. *15th*, 3 A.M., temperature 97.8°, pulse 62, respiration 18; 8 A.M., temperature 98°, pulse 66, respiration 18; 1 P.M., temperature 97.4°, pulse 68, respiration 18.

He was now apparently doing well, took a sufficient amount of nourishment, bore free stimulation well, and was getting a fair amount of sleep. During the evening of January 15th his temperature arose about one degree above normal, and at 2 A.M. of January 16th it was 100.4°, the pulse 82, the respiration 24, but at 7 A.M. of the 17th the temperature had fallen to normal. During the next forty-eight hours the temperature varied from a degree to a degree-and-a-half above normal, and the patient was slightly restless, and did not relish his nourishment as well as he had previously. At 7 A.M. of January 19th, after a restless night, during which the patient had suffered from considerable pain in the left mastoid region and in the posterior portion of the head on the left side, the temperature registered 99°, the pulse 74, the respiration 18. During the day he felt restless, and at 4 P.M he began to feel chilly, and hot bottles were applied to his feet. At 5.30 P.M. the following notes of the case were made:

"The patient has been restless, worried, or emotional all day. His condition does not seem so good as it did yesterday, and he complains of considerable pain in the left upper posterior cervical region. The left posterior cervical muscles are somewhat rigid; they stand out prominently and are slightly tender to pressure. The man is unable to bring the head forward to anything like the normal extent, and the attempt to do so gives him considerable pain in the rigid muscles. There is no pain in the head or ear, and no tenderness over the ear or any portion of the head. The patient points to the attachment of the cervical muscles to the cranial bones as being opposite the site of the uncomfortable feeling that seems to him to lie deep in the parts. There is no paresis or paralysis of any of the external ocular muscles. The pupils are normal in size and respond feebly and slowly to light; accommodation is normal. The ophthalmoscope shows slight haziness of the margin of the optic nerves, more marked on the right side than on the left (in which the veins seem very large). The knee-jerks are greatly increased; the plantar reflexes almost absent; ankle-clonus is absent; the cremasteric reflexes are present but very feeble, while the abdominal reflexes are absent. There is no paresis or paralysis of any muscles. The mind is perfectly clear. The temperature is 99.4°, the pulse 78, the respiration 16." One-and-a-half hours later, or at 7 P.M., a chill occurred and the temperature rose to 101°; the pulse then was 88 and the respiration 18. The chill lasted until 8 P.M., when the thermometer registered 104°; the pulse was 100 and the respiration 24. During the night the temperature descended to 99.8°, the pulse to 84, and the respiration to 16. On January 20th, at 9 A.M., the man felt more comfortable. At a consultation, three hours later, with Drs. Rogers, Parkhill, Lobengier, and Stenhouse, an operation was decided upon for 1 P.M. The opinion was concurred in by most of us that the pathologic condition was a probable infecting focus in the mastoid cells and antrum, and phlebitis of the sigmoid sinus, with possibly meningitis of the posterior fossa of the left side. Abscess was not suspected. The repeated chills, followed by high and vacillating temperature and the pain in the posterior upper cervical triangle, in association with otitis media, were in favor of phlebitis of the sigmoid sinus; the only reason that meningitis was suspected was from the stiffness of the posterior cervical muscles; while the absence of headache seemed to militate against abscess from ear-disease.

### SURGICAL HISTORY BY DR. ROGERS.

The operation was begun at 1.30 P.M. Full preparation had been made to wash out the lateral sinus, but as a preliminary step the mastoid antrum and cells were opened by chiselling and were scraped. No pus or indication of disease was discovered. An incision was then made backward, with the intention of trephining, to reach the sinus. In clearing the bone a large vein (mastoid) was cut immediately over the sinus and the blood flowed very freely. This seemed to show that the sinus was unobstructed, and it was decided to try the effect of this free local depletion before going into the skull. Some ounces of blood were allowed to escape and the venous foramen was then packed with coarse silk-thread and the wound closed. At 5 P.M. the patient had a severe chill and the temperature rose to 105.2°. It fell in a few hours below 100° and did not rise again. Rapid convalescence with the disappearance of all serious symptoms followed, without complications, and the patient left the hospital, apparently well, in two weeks.

### SUBSEQUENT HISTORY OF THE CASE, WITH REMARKS, BY DR. ESKRIDGE.

During the first month after the patient left the hospital I saw him regularly once or twice each week. He seemed to gain gradually in strength and flesh, but at times, especially at night, he became confused and would do or say foolish things. He did not suffer from severe head-pain, but was conscious of a disagreeable sensation referred to the head most of the time. Mental effort exhausted him. Early in March, or about six weeks after the operation, he became depressed mentally, grew suspicious of his physicians, wife, or of anyone who manifested an interest in him. At this time his headache was often very severe, and sometimes in his desperation he would strike his head against the furniture or walls of his room. He refused to receive any attention from Dr. Rogers or myself. Not infrequently he gave vent to violent outbursts of anger, and would threaten to kill his wife. He made several engagements to visit me at my office, but he never kept any of them. He remained on the street a great deal of the time, both day and night, and on one or two occasions he disappeared and was not heard from for two or three days. He was either unwilling or unable to give an account of his whereabouts during these times. His wife became greatly alarmed about his condition and arranged with me to call on him late on the night of March 20th. I called about eleven o'clock and found him in bed. He received me kindly, answered questions readily, and made no objections to my examining him. He complained bitterly of headache and said he could not sleep well. I did not make a thorough examination that night, as he promised to call at my office the next day.

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I found both optic discs congested and apparently a little swollen. The fields were preserved and the pupils were equal, normal in size, and responded readily to light and in accommodation. The knee-jerks were decidedly increased. I did not pursue the examination further, as the man promised to submit to a prolonged examination the next day. He showed no undue irritability during my visit. After I left he became violent and threatened to kill his wife and other inmates of the house, because, he maintained, they were conspiring against him and had arranged for me to visit him when he did not wish to see a physician. He did not visit me the next day, and the day following he left town with his wife. On May 1st I received a letter from his wife stating that he was still suffering considerably from his head and sought relief by bathing it frequently in cold water. At times he was quite dizzy. Occasionally he was attacked with excruciating pains in the head and would often give way to outbursts of anger, when he would threaten to kill his wife. On June 20th I again heard from him indirectly, and my informant stated that he was apparently no better; and that he was still suffering from headache, and was subject to outbreaks of violent temper.

On July 10th and 27th I again heard from the patient. On the date first named his wife called at my office, and said that her husband was less violent, but that he still suffered from headache and had lost considerable flesh. He was still suspicious of everyone and refused to see a physician. They were living about two-hundred-and-fifty miles from Denver, but, as I had to visit Pueblo on July 30th, the woman promised, if possible, to meet me there with her husband on that day. On the 27th of July I received a letter from her stating that it was impossible to get her husband to consent to visit Pueblo, and that he was still suffering severely from pain in the head.

The history of the case subsequent to the operation demonstrates that while the course of the disease was somewhat checked by the surgical procedure, the entire morbid process was not removed. It is probable that partial obliteration of the sigmoid sinus was effected by a septic thrombus, and that the bleeding at the time of the operation relieved the congestion, but that the infective thrombus subsequently invaded the brain-substance.

In the absence of a thorough examination since the beginning of the severe headache and the mental symptoms subsequent to the operation it is impossible to determine the condition of affairs at present. The probabilities are that the man is suffering either from a focal pachymeningitis or from abscess of the brain. It would probably have been better had the sigmoid sinus been exposed and cleansed at the time of the operation, for the history of the case up to that time, with repeated high temperature, the sudden rise in temperature being always preceded by a chill, indicated the presence of a thrombus. In a subsequent case presenting similar symptoms, I should urge that the sigmoid sinus be entered, notwithstanding that the veins leading into it may indicate that the sinus is not completely occluded.

The diagnosis of acute brain-trouble following otorrhea rests between infective thrombus, meningitis, and abscess of the brain. The clinical history of each of these morbid processes, when taken individually, is quite distinct, and the diagnosis is comparatively easy when the symptoms of one of these pathologic states do not obscure or complicate those of the others. Unfortunately we may have two, or all, of these morbid processes existing at the same time in the same individual, when the symptoms of abscess may be totally obscured by those of meningitis or thrombosis. Meningitis is attended with a continual elevation of temperature considerably above normal, and usually also with symptoms of intracranial nerve-irritation, and not infrequently, further, with retraction of the head, while an infective condition of the sinus is marked by repeated chills followed by high temperature and well-pronounced febrile remissions. The pulse is rapid and weak, and tenderness is often present over the mastoid region and posterior upper cervical triangle of the neck and over the course of the jugular vein. The symptoms of an infective thrombosis are so obtrusive as in a great measure to overshadow those of abscess. The affection of the sinus demands the first attention, as a cure would be impossible though the contents of the abscess were evacuated, so long as the condition of the sinus was allowed to go unrelieved; and the abscess should receive attention later, if it is possible to diagnosticate it. The presence of basilar meningitis of the posterior fossa is evidenced by retraction of the head, and of the middle fossa by involvement of the cranial nerves.

## NOTES ON A CASE OF LEPROSY.

BY C. F. HERSMAN, M.D.,
OF ST. LOUIS, MO.

DURING the winter of 1894 there entered the City Hospital, in St. Louis, a well-marked case of the mixed form of leprosy. The true nature of the affection was first recognized by Dr. W. L. Russell, at that time Senior Assistant Physician. It is through his kindness that I saw the case.

The brief clinical notes that were made at the hospital give the following information in regard to the case: The patient was a man, sixty-five years old, who was born in the State of Illinois. Most of his life he had followed the trade of a tinner. Save an attack of gonorrhea many years ago, he had never suffered from any illness till his present trouble began. There was no history of syphilis. The man had used alcohol in moderation. A good many years ago (he did not recollect just how long, but thought about twenty years) he lived in South America, associating intimately, even to the extent of sexual intercourse, with persons who had a peculiar spotted condition of the skin. Some of them had lost their fingers; at the time the man understood that these peculiarities were the results of smallpox.

The patient could not tell exactly when his trouble began, but said that it was at least four years ago. He first noticed a red spot on one of his thighs, which, after a time, was replaced by a bleb that left in its wake a superficial ulcer. From this time red spots began to appear over the whole body. On the trunk and limbs there were to be seen many white spots, irregularly oval in outline, from a quarter of an inch in diameter to the size of the palm. The intervening skin was of a dark brownish-red and was evidently hyperpigmented. The white, atrophic-looking spots were most noticeable upon the back and the extensor aspects of the limbs, though there were a number upon the front of the body and the flexor surfaces. For some time the patient had

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been anesthetic to such a degree that he burned himself without knowing it.

When admitted to the hospital the man had an irregular fever, which was thought to be malarial. At the end of two weeks the fever declined, and there were noticed in the sacral region some fifteen or twenty nodules, slightly elevated, from a pea to a bean in size. The nodules seemed to be somewhat darker in color than the skin surrounding them, but the difference was so slight that one could scarcely discern the nodules except by looking obliquely across the surface. During the febrile attack the temperature was at one time as high as 103° F.

Physical examination revealed no lesions of the viscera.

The urine had a specific gravity of 1015, and contained neither albumin nor sugar.

On examination as to sensibility it was found that in the white patches touch, pain, and the temperature-sense were equally affected, in the center of the patch to such an extent that all three seemed practically absent. In the skin between the white atrophic patches (that portion of the surface where hyperpigmentation was present) the sense of pain seemed in many places much more affected than touch, while the temperature-sense might be said to occupy an intermediate position, being not so much affected as the pain-sense, but more than touch. In the ulnar nerve above the right elbow could be felt several nodules. The ulnar and peroneal nerves of both sides seemed larger than normal and were quite tender on pressure. There was marked paresis of all the extremities, though no absolute paralysis was discovered. The tendon-reflexes were increased. One of the nodules was removed from the back, and, after hardening in alcohol, sections were made and examined for lepra-bacilli. The sections were heated for a few moments in carbol-fuchsin solution and then decolorized. A surprising number of bacilli were then visible, lying for the most part in masses that were situated in the upper part of the corium. These masses were so large and so numerous as to give a reddish hue to the specimen when viewed with the naked eye. In many portions of the section the bacilli could be seen lying in rows connecting the larger masses, as though lying in the lymphatics of the skin. The chief point of interest in this case seems to lie in the dissociation of sensation that was present. It has been taught that one of the chief points in differentiating syringomyelia from the nervous type of leprosy was that with the former malady dissociation was found, while with the latter the loss of the three senses, touch, pain, and temperature, was uniform. Here we have a case in which there can be no doubt of the diagnosis, in which this symptom, supposed to characterize syringomyelia, was well marked. It is not difficult to imagine that a case of the pure type of the nervous form of leprosy might exist presenting this dissociation and so making the differential diagnosis almost impossible. Petrini[1] has seen a case of leprosy in which the same phenomenon was noted, while Morrow[2] refers to a similar case that he has seen.

[1] Annales de Derm. et de Syph., Dec. 1894.

[2] A System of Genito-urinary Dis., Syph. and Derm., vol. iii.

## FRACTURE OF THE PELVIS.[1]

By W. F. BREAKEY, M.D.,
of Ann Arbor, Mich.

A man, about sixty years of age, while working on a building, fell about ten feet to the ground, in consequence of the breaking of a scaffold, striking on his left side on some stones. He was helped up and stood alone while he urinated, the urine appearing normal in color. He was taken to his home on a dray, where I saw him, soon after, with my son, Dr. James F. Breakey. The man was suffering from considerable shock, but was conscious enough to complain of severe pain in the left pelvic region and in the right forearm, in which latter was found a Colles fracture of the radius, with dislocation of the ulna. He was given stimulants and anodynes. Dr. Nancrede saw the patient at this stage with me. A cursory examination of the pelvis and left lower extremity showed marked flattening of left lateral pelvic and trochanteric outline, with slight apparent shortening of the thigh. There was eversion of the left foot, and ability to move the thigh voluntarily in any direction in but slight degree; though the limb could be moved with abnormal freedom as far as resistance opposed. Movement, however, greatly aggravated the pain. There was crepitus, felt rather than heard, which, with the apparent shortening of the limb and the flattening of the hip, suggested fracture of the neck of the femur, but on rotation of the femur the trochanter described its normal arc. Traction of the limb in the line of extension restored its length, but did not restore the contour of the trochanter and hip, which had the appearance of lateral compression, though the femur seemed to be intact and not dislocated from the acetabulum. Further examination disclosed great mobility of the left pelvic brim and of the spine and ramus of the pubes on the same side, and fracture of pelvis was diagnosticated, though without supposing such comminution of bone as the fragments showed.

The nerve-supply and the cutaneous sensibility of the extremity were not impaired. There was inability to evacuate the bladder after the first effort, and the catheter had to be used. The secretion of urine was not interrupted. There was little to be done in the way of surgical treatment proper. The fractured forearm was appropriately dressed. The treatment of the fractured pelvis consisted chiefly in securing rest and support for the injured parts and the thigh and leg, with slight traction, which favored restoration of the contour of the hip and gave some relief from pain.

Though conscious for two days, the patient did not rally from the effects of the shock, and died on the third day after the injury, becoming partially comatose a few hours before death.

It is rare that the extent of such injuries can be demonstrated by postmortem examination, much less by the fractured bone itself.

The capsular and round ligaments of the head of the femur were intact, though lines of fracture ran through the acetabular socket. There was much bruising of the soft tissues contiguous to the fractured innominate bone, and to the rectum and bladder, though no lesions of

[1] Communication and fragments presented to the Mississippi Valley Medical Association, at Detroit, Mich., September, 1895.

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these viscera could be detected. Some small fragments of the ilium were lost in maceration, as also were some fragments of the radius, showing an interesting case of Colles (or more nearly Barton's) fracture. The innominate bone was shattered into about twenty fragments.

The literature of the subject shows that fracture of the crest and processes of the ilium is comparatively infrequent; that of the ischia and one ramus only even more rare; but such extensive comminution as shown by this fracture is very rare.

Holmes gives an illustration of a case in which the head of the femur was driven through the acetabulum, and the appearance of this bone would indicate that a considerable part of the impact had been through the head of the femur.

I have seen two cases of fracture of the crest and processes of the ilium, one in a young person and one in a man of sixty, both of which made complete recoveries.

## MEDICAL PROGRESS.

***The Etiology of Goiter.***—MORRIS (*British Medical Journal*, No. 1801, p. 13) reports that during two-and-a-half years' residence in Hambleden, Buckinghamshire, he has seen fifty cases of goiter among a population of two-thousand, with a possibility that there are others that escaped observation. The district is situated at the foot of one of the spurs of the Chiltern Hills. The soil is excessively chalky, and with few exceptions the water-supply is obtained from deep wells sunk into the chalk. When the water is low the water is drawn and even consumed while still milky in color, for the poor take little trouble to boil it or let it settle. No cases were encountered at the tops of the hills, where the people drink stored rain-water. Of the whole number of cases all were water-drinkers, but only four were males, and the ages ranged from four to seventy-six years. There appeared to be little doubt that the presence of calcium and magnesium carbonates in the water was the sole cause of the disease. In only one instance was there even the slightest suspicion of hereditary transmission. Neither was intermarriage a factor. The amount of iron in the water was infinitesimal.

***The Warm Bath as a Diagnostic Measure.***—RICHARDSON (*Asclepiad*, vol. xi, No. 43, p. 268) calls attention to the use of the warm bath in the diagnosis of diseased conditions of the abdominal cavity. The water of the bath is brought up to the natural temperature of the body, and the patient is allowed to recline in the water with all parts immersed, except the face and head, for a quarter of an hour before the examination commences. By that time the skin has become flaccid, and the parts beneath, especially the abdomen, are more readily felt through the abdominal walls. The method is applicable not only to emaciated subjects but also to the obese.

## THERAPEUTIC NOTES.

***The Treatment of Diphtheria with the Antitoxin.***—TIMMER (*Deutsche medicinische Wochenschrift*, 1895, No. 37, p. 607) reports the employment of the antitoxin in the treatment of 147 cases of diphtheria between October 24, 1894, and June 1, 1895. There occurred 13 deaths, a mortality of 8.8 per cent. Among 51 cases requiring operation there was a mortality of 18 per cent. Diphtheria-bacilli were found in 117 of the cases, among which number there were 9 deaths, 7.7 per cent. The mortality in previous years, between 1883 and 1893, varied between 31 and 50.5 per cent. During this period the mortality in cases operated upon varied between 51 and 67.5 per cent.

BAGINSKY (*Berliner klinische Wochenschrift*, 1895, No. 37, p. 813) reports a mortality of 15.6 per cent. among 525 cases of diphtheria treated with the antitoxin up to March 15, 1895, as against a previous mortality of 41.1 per cent. From March 15 to August 31, 1895, 224 cases were treated with the antitoxin, the diagnosis being confirmed by bacteriologic examination, with a mortality of 9.37 per cent.

WELCH (*Bulletin of the Johns Hopkins Hospital*, vol. vi, Nos. 52, 53, p. 97) has collected from all accessible sources 7166 cases of diphtheria treated with the antitoxin, showing a mortality of 17.3 per cent., as compared with an estimated mortality of 42.1 in cases treated previously or simultaneously without the antitoxin. In 648 cases treated with the antitoxin in which tracheotomy was performed the mortality was 39.8 per cent.; in 342 in which intubation was practised the mortality was 28.9 per cent.; in 26 in which intubation was followed by tracheotomy the mortality was 53.8 per cent.; in 211 cases in which it is not stated whether tracheotomy or intubation was practised the mortality was 40.2 per cent. The estimated mortality in cases treated simultaneously or previously without the antitoxin was 64.5 per cent. after tracheotomy and 62.4 per cent. after intubation.

***Chlorolin.***—At a recent meeting of the Société des Sciences Médicales de Lyon, NICOLAS (*Lyon Médical*, 1895, No. 35, p. 15) detailed the results of observations upon a new antiseptic known as chlorolin, the chemic formula of which has not yet been determined. It was found that the addition of this substance in the proportion of 1 to 10,000 to nutritive bouillon prevented the development of diphtheria-bacilli. The addition of 5 per cent. to a bouillon-culture of diphtheria-bacilli was sufficient to destroy these. The agent in the form of vapor also had an injurious effect upon diphtheria-bacilli. In all cases the colonies in the neighborhood of those directly acted upon presented no changes in form or histo-chemic reaction, although their power of growth was interfered with and their virulence was diminished.

***Iodoformin*** is the designation given by EICHENGRUN (*Berl. Ap.-Ztg.*, 1895; *Ph. P.*, *Centr. f. die ges. Ther.*, Sept., 1895, p. 572) to an odorless modification of iodoform, appearing as a fine, white powder, insoluble in water and in the ordinary solvents. It is said to contain 70 per cent. of iodoform, which is set free by contact with the discharges of the wound.

***In the Treatment of Furunculosis*** BROCQ (*Berliner klinische Wochenschrift*, 1895, No. 35, p. 776) has recommended extract of colchicum, in doses of from 2 to 4 cg. (gr. $\frac{1}{3}$–gr. $\frac{2}{3}$), in conjunction with topical applications of spirit of camphor.

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## THE PATHOLOGIC NOVEL.

Physicians can no longer complain that the public is not interested in their work. Medical subjects are becoming the rage, not only in the froth—which is too often scum—of the enterprising reporter of the daily press, but also in the pages of our more permanent literature. The latest thing in antitoxins, the fashionable inoculation-cure for carcinoma, the most dramatic development in cerebral surgery, the appalling ravages (and still more appalling theories) of appendicitis fill column after column in our newspapers. The shortest road to fame nowadays is to invent a new remedy, operation—or bacillus.

The alarming increase of insanity, of neurasthenia, of carcinoma (due to the oxalic acid in the toothsome but treacherous tomato), of heart-disease, is bewailed at length. Such headlines as "He Swallowed a Lamp," "Another Victim of the Ghoulish Grape-seed," "Diphtheria Done Up," etc., stare at us from every page. This state of affairs is partly due to the morbid sensation-craze that spares no sanctuary in its ravages, but it is also largely indicative of a genuine interest on the part of the public in the physician and his work. There are drawbacks, it is true, and Koch is not the only medical man who has had occasion to cry "Protect me from my friends."

It is bad enough to see distinguished physicians and their favorite diseases misrepresented and suffering indignities of various description in the ephemeral sheet of the daily newspaper or weekly journal. But when it comes to mistreatment of this sort in the pages of permanent additions to our literature, it is time to lift our voices in protest. The worst offender in this regard is that school of novelists falsely calling themselves "realists." As the avowed apostles of the uncomfortable and repulsive, disease has of course a peculiar attraction for them. A carcinoma or a tertiary ulcer fascinates them as a velvet cheek or a rippling muscle does the true artist. Carrion of any sort, physical or moral, attracts them like vultures; but, like the vulture, they are wretched anatomists and worse pathologists. If the fidelity of their alleged photographs—which they mistake for pictures—of the "human animal" ("*La Bête Humaine*," Zola) is no greater than that of their portrayal of his diseases, their "details" and "studies" are essentially falser than the wildest visions of the romanticist, and this is actually the case, as that most constant and most loving student of his fellowmen, the physician, instantly detects and resents.

To no one is the "seamy side" of life more incessantly revealed or the secret heart of humanity more completely laid bare than to the physician, and yet we are unanimous in declaring that the wider our experience, the greater becomes our respect for and belief in humanity, while these dabblers are pessimists to a man. Their novels are therefore usually "pathologic," even though not dealing avowedly with disease as one of the *dramatis personæ*. One of the most glaring instances of this is the notorious *Kreutzer Sonata*, in which Tolstoi, the founder of the "New Christianity," practically declares through his mouthpiece, the "hero," that everything connected with family-life is a source of wretchedness, shame, and crime. Sexual intercourse, for instance, is in itself sinful and degrading, and involves the loss of mutual self-respect on the part of both husband and wife. "Christ's saying, 'He that looketh after a woman to lust after her hath committed adultery,' applies to a man's own wife." Children are merely a source of infinite worry and anxiety, and family-life is simply the breeding-ground of jealousy, spite, and furious quarrels. This writer finally comes to

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the sage conclusion that it were better for the human race to become extinct than to continue to perpetuate itself by the present methods of marriage and the family. The doctor, of course, comes in with the rest for his splash of vitriol in the shape of the foulest insult levelled at the profession since the days of Molière, "the doctor who undressed her *and felt of her all over*, for which precious service I was compelled to pay and thank him, declared," etc. The insinuation is one of which only a *roué* and a Russian would have been capable, and yet its author is the acknowledged high-priest of the "gospel of humanity," of realism.

Of all diseases chosen as factors in the development of the dramatic situation, syphilis is, for obvious reasons, the favorite. It is supposed to combine physical and moral repulsiveness and retribution in a way that peculiarly appeals to these sensation-mongers. Accordingly, it can boast of several novels or dramas devoted exclusively to its exploitation. One of the most celebrated of these is Ibsen's *Ghosts*. In this passionate protest against the conventionalities—and decencies—of civilized life, the keystone of the whole dramatic situation is the appearance of a mysterious disease in the central figure, which his physician is made to declare is inherited from his dissipated father. This furnishes his mother with the necessary cue for a fiercely dramatic outburst against "society" for compelling her, not to marry the father, for this she admits she was under no real compulsion to do, but to remain faithful to him afterward. She hotly reproaches her spiritual adviser for his "cowardice" in not receiving her with open arms twenty years before, when she had fled to him and, with the engaging frankness of the new woman, informed him of her preference for him over her husband.

The situation is a touching one, the dramatic and ethical merits of which are beyond our sphere; but its pathologic elements deserve some comment. Firstly, no such disease as that here described by Ibsen is as yet known to the medical profession, though, now that his much-lauded "marvellous insight" has enabled him to discover, or, rather, invent it, we shall probably hear of other cases being reported. Secondly, Ibsen clearly intimates that he is trying to depict syphilis or some venereal disease; but he has made the trifling mistake (for a realistic photographer) of endowing the avowedly *hereditary* form of the disease with symptoms that can only occur in the *acquired* form. Even in that variety they have never yet been known to occur in the order, combination, and manner, or with the suddenness described. Thirdly, if the son had been the subject of the hereditary form of this disease, he would almost inevitably have presented unmistakable marks of it in his corneæ, teeth, or complexion, and, perhaps, in all three. By a curious fatality, Ibsen, in his glowing description of the son's blooming youth and vigor, decking the victim for the sacrifice, as it were, touches upon the facial details in such a way as practically to preclude the presence of any of these signs. Fourthly, any brain-disease, venereal or otherwise, acute enough to destroy vision totally within five minutes, would almost certainly destroy life as well within a few days or weeks; while one of the most harrowing scenes of the play is the fervent pleading of the son with his mother to promise to give him a fatal dose of morphin as soon as his mind is gone, as his omniscient physician has told him that he may live on for years in an idiotic condition.

In short, the verdict of the pathologist upon this drama must be the same as that of both the true literary artist and the sociologist—*Bosh!*

In that recent product of the emancipated woman, *The Heavenly Twins*, we have another apotheosis of venereal disease. In this instance the fault of the drawing is in the perspective; but this is so glaringly incorrect that the effect of the whole is essentially false and unreal. Molehills are literally magnified into mountains. The main burden of the book, that men who have been dissipated in youth are usually incapacitated from becoming the fathers of healthy children, is as inconsistent with the known facts of the case as it is repugnant to common sense. Such disasters as the authoress describes may and do occur; wild oats must certainly be reaped some day, and we cannot be too strenuous in insisting upon a rigid scrutiny of both the record and the physical condition of the prospective husbands of our pure daughters; nor can the standard of male chastity be raised too high; but such results are, beyond peradventure, the decided exception. Ten per cent. would abundantly represent their frequency, even after such marriages; while the impression given through the whole of Mme. Grand's pages is that they are the almost invariable rule.

As to her minor proposition, that the strain and burden of maternity break the spirit and undermine

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the health of women, both the records and medical opinion are diametrically opposed thereto. Married women are healthier, happier, and longer-lived than unmarried ones. Indeed, the authoress has by a curious oversight or *gaucherie* actually proved the morbidness of her view of life by letting her extraordinary heroine and mouthpiece develop well-marked symptoms of insanity in later life and disappear from the scene with the shades of the asylum gathering round her.

In *Trilby* we have a charming little story utterly wrecked and ruined by a baleful and ghastly shadow of hypnotic influence, which hangs over it like a pall. Like most such "glooms" it has, happily, no counterpart in real life, not even in the life of the hospitals. There are two absolutely essential elements lacking in the verisimilitude of Svengali's influence over Trilby: Willingness to submit to being influenced on the part of the subject, in the first place, and the original possession of the faculties which she exhibited at his suggestion in the second. Without the first requisite hypnotism can never take place, though, of course, after the hypnotic state has been reached the subject's actions may be entirely beyond the control of her own will. As to the second, an absolutely tone-deaf person, as Trilby avowedly was, could no more be endowed by hypnotic influence with the power of appreciating harmony and distinguishing shades of musical expression than she could be changed from a blond to a brunet. Every physiologist knows that, no matter what her vocal powers might be, she would be utterly incapable of harmonious song unless she could hear and correctly appreciate the tones of her own voice. Deaf mutes, for instance, are dumb, simply because they cannot hear the sounds made by their usually perfect vocal apparatus, and consequently cannot regulate and combine them into articulate speech. No amount of suggestion or mesmerism can draw out of any subject anything more than was in them before. The popular idea that hypnotism is a sort of connecting-tube, through which the moods, will, impulses, and powers of the operator can be poured into the mind of the subject, is entirely unfounded. Finally the mysterious decline and death of Trilby from the "fearful drain upon her nervous force," without pain or symptom of disease, are highly artistic, but extremely unnatural. People do not die that way at thirty-one, except in novels, or from that cause at any age. In short, we are thankful that the painful later experiences and early death of Miss Trilby O'Ferrall not only did not happen, but could not have happened; and we sincerely hope that Mr. Du Maurier will recognize the fact in his forthcoming sequel.

Death and disease are painful and piteous enough; but, like a certain other morbid influence, not half so black as they are painted, and even from the hospital-ward and the postmortem table we may learn that

> "There are nettles everywhere,
> But sweet green grasses are more frequent still.
> The blue of heaven is greater than the cloud."

## THE MILK-SUPPLY OF LONDON.

A COMMISSION instituted by the *British Medical Journal* has recently reported some results obtained in the examination of milk supplied to the city of London. Both whole milk, as ordinarily sold in the market, and condensed milk in cans, have been examined. The number of samples taken is, however, too small to form a satisfactory basis for judgment as to the quality of the general milk-supply of that large city; only twenty-five of each set, whole and condensed, being examined. The results as to the former indicate the usual conditions, skimming and watering, and the employment of preservatives. There is nothing very novel in this information; indeed, from what is known of the liability of milk to adulteration, and of the methods in common use, one could say without the examination of samples that the supply of any large city is tampered with in certain respects.

Many of the samples of condensed milk were found to have been prepared from milk closely skimmed, so that the proportion of fat was much less than that contained in standard brands of condensed milk. This is also a fact that has been known for several years. Some of the public analysts of England have called attention to the sale of condensed skimmed milk in England. A number of these brands bear on some part of the label a statement, direct or indirect, that the fat has been partly abstracted; but, as is usual in such cases, the indication is so printed as to escape casual inspection.

The special interest that attaches to these examinations is in reference to the probability of similar practices in this country. Examinations of standard brands of condensed milk prepared in Philadelphia and New York have been made during the last year or so for THE MEDICAL NEWS, but no marked de-

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ficiency of fat has been found. The proportion rarely runs over 12 per cent., and frequently does not go over 9; but even the cheapest brands have been found to yield a fair proportion. It is somewhat surprising that the American manufacturers have not sought to put upon the market condensed skimmed milk, and such products are liable to appear at any moment. The most serious objection to the condensed milk sold in this country is the very large proportion of cane-sugar that is added. This ingredient frequently exceeds in quantity the constituents of the milk itself.

It has been stated that the number of samples of whole milk examined by the *Journal* Commission is too insignificant to form a basis for judgment as to the character of the London milk-supply. It is interesting to note that the milk supplied to certain public institutions was of very inferior quality, and it is doubtless true that in many cases the materials supplied to the tables of the officials will be found to be much better than that supplied to the tables of the inmates. This is a point that needs the active interference of the philanthropist, because it is reasonable to assume that a part of the work of improvement in the condition of the delinquent and defective classes will consist in providing them with wholesome food. As an indication of the extent to which, at least, one milk-supply company of London carries its supervision, we may instance the Aylesbury Dairy Company, located in the west end of London, which has for many years maintained an analytic laboratory, in which not only are extensive examinations of the milk and milk-products handled by it made, but also a sanitary supervision over the condition of the farms from which the milk comes is maintained. During the year 1894, 28,455 samples of milk and 2269 samples of cream were examined, in addition to a considerable number of examinations of other milk-products. Of the milk-samples, over 12,000 were taken from the railway-churns on arrival at the company's depot. To control the men employed in delivering the milk 13,000 samples were taken before, during, and after delivery, and analyzed comparatively. In this company's work, which is conducted by one of the most distinguished analysts in England, the estimations of fat are all made by a rapid process devised by two Philadelphia chemists. No instance of tampering with the milk was found in all these examinations. Whatever may, therefore, be the general inference drawn from the work of the *British Medical Journal* Commission we must infer that a considerable proportion of the London milk-supply is quite above suspicion, and, as this result was obtained through private enterprise, it emphasizes the point that has previously been made in THE MEDICAL NEWS, that reform in the food-supply, and especially in the milk-supply, will be promoted largely by the development of enlightened business-principles.

## EDITORIAL COMMENTS.

***Vital Statistics in New Zealand.***—New Zealand is one of the most interesting countries of the world. It is one of the latest English colonies. Settlement began in earnest in 1850. According to the official Year-book, the population was, in 1894, 672,265, exclusive of Maoris—357,635 males and 314,630 females. The Maoris number about 41,993. There were also, in 1894, 4044 Chinese, of whom 17 were females. The Chinese are diminishing in number at the rate of about 10 per cent. a year, while the Maoris have diminished 10 per cent. in twenty years.

The population of New Zealand is increasing rapidly by immigration. The population was 32,554 in 1854—17,914 males and 14,640 females; in 1863 it was 164,048—105,978 males and 58,070 females; in 1873 it was 295,948—170,408 males, and 125,540 females; in 1883 it was 540,877—294,665 males and 246,212 females. As the population now stands, a little over half, 393,371, were born on the islands. Only 70.02 per cent. were married in 1891. The excess of births over deaths was 11,420 in 1893, but 14,106 in 1884. During the year 1893 there was a gain of 10,412 by excess of immigration over emigration. The death-rate is marvellously low, between 12 and 13 per 1000 of population in the cities, and 10.23 in the whole colony. The infantile mortality was about 10 to each 100 births in the cities.

During the year 1893, 836 married men died, leaving 3352 children—1577 under fifteen years of age. The average number of children to each father was 4.01; 135 of the 836 fathers were childless.

The most astonishing and inexplicable showing is made in relation to the rate of births. Since 1881, in spite of an increase of population from 493,482 to 661,349 in 1893 and the increase of marriages at the same time from 3277 to 4115 each year, the number of births has fallen from 18,372 (or 37.55 per 1000 population) to 18,187 (or 27.50 per 1000 population). This cannot be due to any error of registration, the compiler of these statistics asserts. This rate is lower than that in any country in the world, except France (22.6) and Ireland (23.1). In the United States the rate is 30.7; in Scotland, 31.4; in Prussia, 37.7; in Austria, 38.1; in Hungary, 40.3.

The male births of New Zealand numbered 9310 to 8877 females, a ratio of 104.80 to 100. There were 188 cases of twins and one case of triplets. One mother in each 101 gave birth to twins. This has been the proportion during the last ten years.

Of the children 673 were illegitimate—37 in every 1000. This is less than in any other country except

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South Australia, where the rate is 28.4 to the 1000, and Ireland, where it is 27. In Switzerland the rate is 46; in Italy, 68; in France, 81; in Austria, 147.

There were 30 divorces asked for, and 18 granted during the year 1893. Nine orphans were thrown upon the community for support.

New Zealand is the most socialistic country in the world. A large part of the land is owned by the colony and little of it is being sold. All public improvements are in the hands of the State, including the railroads and irrigation-plants. The factory-laws, female-labor laws, and child-labor laws are the most favorable to labor. All conspiracy-laws have been abolished and compulsory arbitration substituted. The contract-system on public works has been abolished, and in its place the cooperative system of construction substituted The land-tax (single tax of Henry George) and the graduated income tax discriminate against the large capitalist in favor of the laborer, and still with all these opportunities for easy living and certain employment the birth-rate is almost the lowest in the world. The prophecy of the Malthusian is denied by this new country, under these circumstances so favorable to the support of large families. This gives a new confirmation of the adage that all prophecies in which man is a factor are very hazardous.

***An International Conference of Railroad and Steamship Surgeons.***—An important international conference of persons interested in the sanitary service of railroads and navigation was held in Amsterdam on September 20th and 21st. The gathering was participated in by medical men in the service of a number of transportation-companies. Among the communications presented was a preliminary report containing the laws and regulations in force in Holland. From this report we learn that both in Belgium and Holland stringent laws exist relating to the safety of employés and passengers of railroads and steamships.

Owing to the good work of Professor Donders, all employés of railroads are obliged to undergo an examination of the eyes, not only on admission into the service, but also every five years thereafter, or after any disease or accident; and although this examination is conducted by the ophthalmologist of the company, yet the supervision of a governmental commission acts as a check in preventing any serious infringement of the act. The companies and the employés also cheerfully cooperate in its enforcement.

A commission appointed by the government regularly inspects each passenger-boat before it sails for a foreign port. The food is tested, both as to quantity and quality; the accommodation and necessary supplies are looked after, as well as the machinery and the general condition of the vessel; and the medical and surgical supplies necessary are prescribed by law. The ship-surgeon and the shore-doctor of the company examine the emigrants as they embark, and reject those who are unfit for the voyage, or whose admission into the foreign port would not be allowed.

To afford first aid to the injured on railways, it has been suggested that signal-stations and block-houses be supplied with surgical-emergency cases, and the employés of the road be given instructions in their use. Depots and railway-trains should likewise be provided with such medical supplies as are necessary in cases of accident. No doubt many a life is lost in railway-accidents because of lack of early attention.

There is as much, if not more, reason for the equipment of a train with emergency-cases as with axes and Bibles. The long-distance trains may even find it an advantage to carry with them a medical officer, whose services shall be at the disposal of passengers and employés.

In all seriousness, we venture to say that a well-equipped hospital and medical service may be one of the conveniences offered to end-of-the-century tourists by some of the transcontinental lines.

## SOCIETY PROCEEDINGS.

### *MISSISSIPPI VALLEY MEDICAL ASSOCIATION.*

*Twenty-first Annual Meeting, held in Detroit, September 3, 4, 5, and 6, 1895.*

(Concluded from page 360.)

DR. C. B. BURR, of Flint, Mich., read a paper on

THE PARANOIAC—A MENACE TO SOCIETY.

He made reference to the numerous recent murders of prominent persons by so-called "cranks." What to do with these persons is one of the problems confronting modern civilization, and is one demanding an answer from students of the subject. There is room enough in our asylums. The trouble is that harmless lunatics are kept in confinement, while dangerous paranoiacs are allowed their liberty. These murders disturb the public but a day, and do not scare us into further provision for a safeguard. The public does not sincerely seek advice from professional sources in the matter. No one who has been threatened by a paranoiac would be willing to have his commitment settled by a jury without medical testimony as to the danger involved in granting freedom to such an individual. The paranoiac is a menace to society, and should be sequestrated; but doubtless the public will continue to view with indifference, or approval now and then, the execution of a criminally insane person as "sane enough to hang," and vainly hope for a deterrent effect of this example upon other deluded minds.

DR. I. N. LOVE, of St. Louis, related the case of a man who murdered his wife and child, having become a paranoiac through excesses and debauchery. The local medical profession agreed the deed was that of a paranoiac, yet a country jury declared that the man was sane enough to hang. The fact was emphasized that often these persons are stimulated to crime by the notoriety the newspapers give them, and consequently the papers should be encouraged to suppress such items.

DR. HUGH T. PATRICK, of Chicago, called attention to the fact that fixed delusions began as early in life as five or eight years, and that in such cases measures of restraint should be instituted early. These delusions are not always discovered, even by the family-physician.

DR. A. E. STERNE, of Indianapolis, read a paper entitled

TOXICITY IN HYSTERIA, EPILEPSY, AND NEURASTHENIA.

He maintained that a toxic state is one of the most frequent and important etiologic factors in the diseases

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named, and one that has received the least attention. The term toxicity should mean functional cellular perversion, causing or being caused by abnormal chemic reactions. The ordinary forms of hysteria are functional. There are, however, no pathologic alterations in the central nervous system itself. We have in many cases a condition of cellular intoxication. It is not necessary that there be any structural change. Many drugs induce a condition similar to hysteria; shock or injury does the same thing. In almost every case there will be some form of cellular malnutrition, and by failing to seek for this possibly the physician will miss the cause and cure. The female generative organs have no doubt been too often blamed as an etiologic factor in hysteria. When actual disease exists in these organs it should be properly attended to; but the organs are not to be blamed any more frequently than other organs. Again, some severe cases of hysteria occur in males. Epilepsy, like hysteria, is a diathesis, though of a more profound nature; but epilepsy presents true pathologic changes in the walls of the vessels, produced by some toxic agent acting at the same time on the ganglionic cells of the cortex. The attacks of epilepsy may resemble severe hysteria, but there is a fundamental difference. The attacks of the latter are never dangerous, while those of the former may frequently be so. Neurasthenia is not often complicated by either epilepsy or hysteria. There are three grades of neurasthenia—weakness, prostration, and exhaustion. Sexual neurasthenia is essentially a masculine affection, though not always or necessarily resulting from a vicious life. In the treatment of all of these cases the toxic element should always be kept in mind. In certain cases surgical interference is demanded. Change of scene and environment is the best treatment for hysteria and neurasthenia. The energies should be diverted into other channels, the remaining vital forces conserved, and suggestive therapy added as largely as possible, but hypnotism is to be omitted. The wakeful state is much better for suggestion. Electricity and the "rest-cure" play an important part in the treatment of all of these conditions; but every atom of nerve-force in every case should always be conserved.

DR. HUGH T. PATRICK, of Chicago, held that traumatic cases must be excluded from this consideration. They come under another class, such as adhesions, etc. He is quite sure that very many of these cases are due to a direct toxemia. Indeed, all conditions that may cause any functional derangement are in a measure toxic.

DR. STERNE, in closing, said he was convinced that the knife was being used too much in these cases. If one can be sure of the lesion, then operation should be undertaken if advisable. In many cases of hysteria, particularly in females, the thyroid gland is enlarged.

DR. HUGH T. PATRICK, of Chicago, read a paper on

SOME OF THE MORE RECENT METHODS OF STAINING NERVE-TISSUE,

illustrated by water-color drawings and presenting a most thorough and practical *résumé* of the subject, with its applications and technic. He considered the method of Nissl to be the method *par excellence* for nerve-cells. With it minute changes in the cell-structure could be detected which would elude any other method. The method of Bevan Lewis, while marking an advance in technic, was thought to be less perfect than it was claimed to be by its originator. It is, however, excellent for hypertrophied neuroglia-cells. There beautiful results obtained by the Golgi method, as modified by Ramon y Cajal, were illustrated, and the importance of the discoveries due to it were emphasized. Rosin's stain, which is practically the Ehrlich-Biondi blood-stain, gives in some cases almost ideal results. The method of Platner—ferric chlorid and dinitrosoresorcin—was illustrated as applied to normal and degenerated nerve-fibers; the method was thought to have an important future. The method of Marchi was said to excel any other for degeneration of from three weeks' to three months' duration. Allusion was also made to the developmental method of Flechsig, and to an unusual but valuable result of the Weigert-Pal stain.

DR. STERNE said that the carmin stain has a particular adaptability for double staining. In bringing out the anatomic details it is practically a necessity. The Nissl stain is the most exact, and for giving an idea of the ganglionic structure cannot be excelled. For all purposes the Marchi method is perhaps the most reliable.

DR. A. P. BUCHMAN, of Fort Wayne, Ind., read a paper entitled

PSYCHOLOGY IN MEDICINE.

He discussed the subjective and objective relations of mind and pathologic conditions. The unit, force, acting properly is health; abnormal action of this unit is disease. The structure of man is governed by a connected train of associated movements called ether, of the existence of which we can have no anatomic proof, but to which the growth of the body must bear definite relation. Fear, grief, anger, or joy modifies the functions of the vital centers. The sympathetic nervous system is the center of the emotions, the cerebro-spinal system that of abstraction. Thus we come to psycho-physiology and bio-chemistry. Thence we step to the subject of hypnotism. The different methods used in producing hypnotism were minutely described, then the possible uses and dangers of hypnotism in medicine were discussed, showing that while good might be done there was also much danger in its use.

DR. STERNE said that the hypnotizer possesses a dangerous power. Any one can hypnotize, as only a certain mental concentration is necessary. The interest in the subject is not so much medical as scientific. There is frequently, if not always, an element of fraud in hypnotism. There is a chance of murderers claiming that they were hypnotized.

DR. PATRICK emphasized the fact that the hypnotizer has no hypnotic power. It seems almost a farce to discourage this idea, as it was exploded a century ago. The influence is purely subjective.

DR. BURR remarked that the insane could not frequently be hypnotized. This would not be so if the hypnotizer had any power in reality. It is possible to accomplish some good in epilepsy with hypnotism; also in hypochondriasis and melancholia it might be valuable.

DR. C. J. HELM, of Peru, Ind., then presented a paper on

THE NERVOUS SYSTEM AS A FACTOR IN DISEASE.

He gave an excellent *résumé* of this subject, pointing out that slight functional disturbances, if constant and

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continued, may produce actual organic lesions. Change is the great remedy for these troubles, not necessarily of surroundings, but of the waste places in the nervous system; the forces should be given some new direction. The patients are to be studied in every phase and gotten out of the ruts they have fallen into.

Dr. Robert H. Babcock, of Chicago, read a paper entitled

SOME CONSIDERATIONS WITH REGARD TO THE SENILE HEART.

He pointed out that the condition named is not always due to or necessarily found in the aged. Importance should always be given to the myocardial changes. Dyspnea is a most frequent symptom of senile heart, although it occurs in other conditions as well. It finally becomes the almost surely fatal symptom—Cheyne-Stokes respiration. Among the remedies advised was the hypodermic use of morphin in a single dose.

Dr. Fuetterer, of Chicago, said that some cases present a more or less intermittent pulse.

Dr. J. B. Herrick, of Chicago, stated that he considered arrythmia a frequent and most important symptom of the senile heart.

Dr. Babcock said that intermittence is not necessarily a dangerous symptom, but at the same time the senile heart is liable to stop during one of these diastolic irregularities of sudden onset. When Cheyne-Stokes respiration was present morphin seemed to act best in conjunction with small doses of atropin.

Dr. Frank Billings, of Chicago, presented a paper on

INTERCOSTAL NEURALGIA.

He took the ground that the affection is always secondary and, consequently, in reality, only a symptom. It may be due to toxic forms of functional nerve-disturbance, or to pressure by tumors. The functional form is most common and is usually due to a toxemia, or to defective excretion, or to malassimilation. Indigestion is a most frequent factor, whether due to the character of the food ingested or to nervous conditions. Insufficient food and lack of outdoor exercise are frequent causes. Intercostal neuralgia occurs oftener in females, usually on the left side. Palpitation is usually present, and gas in the stomach with eructation always. In diagnosis search must be made for the cause. The disorder may be confounded with pleurisy or muscular rheumatism of the heart. In treatment the cause is to be removed and any simple restorative tonic given.

Dr. W. H. Porter, of New York, read a very exhaustive paper entitled

NEW LIGHT ON THE ROLE WHICH IRON PLAYS IN THE PHYSIOLOGIC ECONOMY—HOW AND WHERE DOES THE HEMOGLOBIN COME FROM?

He maintained that hemoglobin is not the product of synthesis. Iron when employed medicinally is not excreted by the salivary, gastric, or sudoriferous glands. The hair takes up some, the urine a slight amount. The bile uses most, but the total in both hair and bile is only one-tenth grain daily. Some writers say that the iron is stored up in the liver, but this is not practical. The intake and output both being very small, we must conclude that iron in the body is very stable. There is then a question whether iron should be so frequently and indiscriminately used in anemia.

Dr. John North, of Toledo, said that he had almost given up the administration of iron in cases of anemia. In most cases the trouble in the alimentary canal should be corrected, the destruction of the nucleo-albumins avoided, and no iron will be needed.

The paper of Dr. John Aulde, of Philadelphia, on

THE ABORTIVE TREATMENT OF TYPHOID FEVER,

was read by the Secretary. The advantages of guaiacol, carbolic acid, salol, betanaphthol, and other drugs were reviewed, and the results of experience with copper arsenite related, the statement being made that the disease could be aborted at almost any stage by the use of copper arsenite, in conjunction with appropriate constitutional remedies. As a rule, gr. $\frac{1}{100}$ of copper arsenite should be given every four or six hours. The remedy may be given hypodermically if the disease has advanced to the second or third week.

Dr. Gustav Blech, of Detroit, read a paper on

MEDICINAL TREATMENT OF TYPHOID FEVER.

Dr. J. E. Woodbridge, of Youngtown, O., read a paper on

TYPHOID FEVER AND ITS ABORTIVE TREATMENT.

Dr. E. L. Shurley, of Detroit, presented a paper entitled

TREATMENT OF PULMONARY CONSUMPTION IN HOSPITALS.

He contended that for many reasons the treatment of this disease in general hospitals is not practicable. Other patients and dangers of contagion, whether real or imaginary, are important considerations. Homesickness and poverty are also against it. Foreign hospitals for tuberculosis are successful, but the conditions are different in this country. The Harper Hospital of Detroit has been more nearly successful than any other American institution. Americans are too restless and have not patience enough to test the system. The hospital must not only be thoroughly equipped, but located in an equable climate.

Dr. Gustav Fuetterer, of Chicago, presented a paper on

THE DIRECT CAUSE OF TUBERCULOSIS.

Inhalation, food, drink, direct injection of tubercle-bacilli into wounds, and heredity were considered the chief means of infection. What can be done to arrest its spread? (1) Early diagnosis. (2) Disinfection by every possible means. (3) Care by the patient. (4) Care by friends and attendants. (5) Personal cleanliness—bathing. (6) Avoidance of kissing at all times. (7) Cleanliness of teeth and mouth. (8) Sleeping alone. (9) Non-attendance upon public and private gatherings. (10) Care of expectoration. (11) Treatment in special hospitals. Scrofulosis and chlorosis were considered in their relation to tuberculosis, and treatment and diet for each dwelt upon at length.

The curability of pulmonary tuberculosis depends greatly on whether or not the patient comes early for treatment. A preference was expressed for treatment with oil of cloves. (1) A No. 1 gelatin capsule is filled

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with pure oil of cloves, and taken with a glass of milk every two hours, from 8 A.M. to 10 P.M. (2) If the oil is tolerated, one capsule should be given every hour. (3) Oil of cloves and cold-pressed olive-oil are mixed in equal parts and injected hypodermically, a syringeful once or twice daily. This treatment is continued for four weeks, stopped for two weeks, and then resumed.

DR. E. B. DENCH, of New York, read a paper on

THE TREATMENT OF ACUTE INFLAMMATIONS OF THE MIDDLE EAR AND MASTOID PROCESS.

For convenience he divided the middle ear anatomically into two parts by a line drawn through the styloid process. Inflammations in the middle ear produce the ordinary results of the same process elsewhere within a cavity lined with a mucous membrane, but the tissue-necrosis is not so extensive; yet there is enough matter retained to cause an outward bulging of the tympanic membrane. If seen early, free bloodletting should be practised and a single dose of an opiate given—not more. Dry heat should also be applied locally. Wet heat is to be avoided. If the case is not seen until later, free opening is the only thing to be advised. The technic of the operation was minutely and carefully described. The more acute and severe the case the more prompt should be the measures for relief. An incision should be made often, even when it is known that the cavity contains no fluid. The incision does not end the danger; the entire cavity must be thoroughly washed out and made antiseptic by irrigation.

DR. F. C. HEATH, of Indianapolis, read a paper entitled

SEQUELÆ OF LA GRIPPE.

He reported several cases of ocular complications, and the more common ear-complications were noted and their treatment considered.

DR. J. M. BALL, of St. Louis, read a paper entitled

ARTIFICIAL RIPENING OF CATARACT.

The history of the various operations was given and the several methods were explained. Before undertaking any of them, the surgeon should be sure the zonula is intact, the tension normal, and the pupil dilatable. Division of the anterior capsule in these cases is always more or less dangerous and may be serious. Bettman's operation, or direct massage or trituration, is, of all, the most desirable. It is the least dangerous, most certain, and speedy. It has stood the test of experience and is worthy of confidence. If prolapse of the iris occurs, the extended portion is to be snipped off at once, contrary to most authorities; but this course has been found satisfactory and beyond expectation.

DR. J. O. STILLSON, of Indianapolis, read a paper entitled

COMPLICATIONS IN CATARACT ARISING FROM DIABETES, ALBUMINURIA, ETC.

He admitted that diabetic cataract is as yet a puzzle. A serous retinitis is often a symptom of nephritis. Albuminuria is a frequent complement of cataract. It is not only desirable but necessary to treat these conditions, if they exist, before operating for senile cataract.

DR. K. K. WHEELOCK, of Fort Wayne, Ind., read a paper entitled

RHEUMATISM AND GOUT IN THEIR RELATION TO THE EYE.

DR. G. W. MCCASKEY, of Fort Wayne, Ind., followed with a contribution on

BIO-CHEMISTRY IN ITS RELATION TO NERVOUS DISEASES.

An endeavor was made to establish the general theory of the causation of nervous diseases by chemic poisons circulating in the blood and acting by a process of selective affinity upon different parts of the nervous system. These poisons were considered in the following groups, the classification being entirely tentative and based upon the source of origin instead of the ultimate chemic analysis or physiologic action. (1) Bacteriologic products—ptomains. (2) Products of perverted tissue-metabolism. (3) Defective elimination or excretion. (4) Perverted secretion of glandular organs. (5) Products of imperfect digestion. (6) Chemic compounds probably present in independent blood-states and of unknown origin.

DR. J. H. TAYLOR, of Indianapolis, read a paper entitled

HOW SHALL WE REAR OUR BABIES?

DR. FENTON B. TURCK, of Chicago, read a paper entitled

DISEASES OF THE MOUTH, NOSE, AND THROAT AS ETIOLOGIC FACTORS IN CHRONIC GLANDULAR GASTRITIS, WITH BACTERIOLOGIC STUDIES OF THE PHARYNGEAL VAULT.

He said that bacteriologic study has developed the fact that upon the mucous membrane of the mouth, nose, and pharynx groups of micro-organisms may form which may also be found growing on the mucous membrane of the stomach, and certain germs that are found in the inflamed mouth may also be found growing on the walls of the stomach in gastritis. Under normal conditions the mucous membrane of the stomach does not favor colonization upon its walls; but let some etiologic factor come into play and micro-organisms will develop. The mouth, nose, and throat, when in a diseased state, become incubators ready to infect when the conditions of the stomach permit the development of micro-organisms upon its walls. The micro-organisms of the mouth are carried with the food into the stomach; many of them are again to be recognized in the stomach, and in cases of gastritis are found in colonies growing upon the walls of the mucous membrane. Dr. Turck, in his clinical and experimental work, has obtained similar groups of micro-organisms from the gums and from cavities in the teeth, as well as from the material removed by the gyromele (revolving sound) from the walls of the stomach. He has been able to cultivate upon the prepared mucous membrane of the pig some of the micro-organisms and to find them also developing in the stomach; but in the control-animal he has not yet found micro-organisms growing in colonies in the stomach. The conclusion was expressed that clinical observation indicates a marked relation between diseases of the mouth and post-nasal cavity and chronic inflammation of the stomach and intestines; that the invasion of the stomach from the infected mouth and pharynx is

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supported by the fact that many of the non-pathogenic micro-organisms present the same biologic and physical forms in cases of gastritis as those found in diseases of the mouth and post-nasal cavities of the same patients.

DR. H. W. LOEB, of St. Louis, read a paper entitled

EXPERIENCES WITH PAQUIN'S ANTITUBERCLE-SERUM IN THE TREATMENT OF LARYNGEAL TUBERCULOSIS,

in which he gave the history of nine cases of this disease, seven of which had been treated with the serum. The patients all improved greatly. One case in particular lost all dysphagia, pain in the larynx, cough, and night-sweats. Other patients showed a much greater improvement than under any other plan of treatment yet tried.

DR. PAUL PAQUIN, of St. Louis, explained in detail the treatment that he had instituted. He said that it was just in its beginning. It will have to be improved, and it will take years to do so. The best results have been obtained in the acute forms of the disease, and not in the chronic. The law underlying serum-therapy is a natural one. It is trying to fight bacteria by using Nature's remedy. He had had failures with serum, but he could mention some forty or more cases of recovery. He thought that in some cases other treatment would be required in addition to the serum. He had not had good results within periods of two or three months, and five or six months, or even longer, were frequently required. He had made over ten-thousand injections with the serum in tuberculous cases, but did not recall one that was attended with fatal results. He counselled study of the climate, as well as the patient, before sending a patient away.

DR. VICTOR C. VAUGHAN, of Ann Arbor, Mich., read a paper on

YEAST-NUCLEIN AND ITS THERAPEUTIC USES.

He said that physiologically nucleins form the chief chemic constituents of the living parts of cells; that constituent of the cell by which this histologic unit grows, develops, and reproduces. This nuclein of various cells differs, and its variety is limited only by the variety of cells. Chemically the nuclein contains a large amount of phosphorus. Some is combined with albumin, forming so-called nucleo-albumin. The nuclein-molecule has a remarkable power of recuperation after partial decomposition. Some nucleins have germicidal properties. Experiments upon animals apparently proved that previous treatment with nuclein conferred immunity to the pneumococcus.

DR. HUGH T. PATRICK, of Chicago, read a paper on the

DIAGNOSIS OF HYSTERIA.

He dwelt particularly upon the peculiarities of hysterical anesthesia, hyperesthia, and paralysis. The principal peculiarities of the first are its distribution in the form of a glove, sleeve, or stocking, with a sharply cut border, and in disseminated and irregular patches. Attention was called to a distinguishing trait not yet described, namely, almost instantaneous shifting of the line of demarcation between the anesthetic and normal areas. This peculiar feature applies equally well to hyperesthesia. Among the hyperesthesias were described hysterical joint-disease and hysterical angina pectoris, with the differential points of diagnosis between these affections and organic disease. The peculiarities of the hysterical gait were described at some length and their relation shown to astasia-abasia. A protest was uttered against the last-named affection being considered a nosologic entity, as it is simply an exaggeration of a common feature in hysterical paralyses. The peculiarities that distinguish an hysterical from an organic paralysis of the upper extremity were also described, and hysterical affections of the special senses were briefly alluded to.

DR. B. M. RICKETTS, of Cincinnati, read a paper entitled

HEMORRHOIDS; PROLAPSED RECTUM; A NEW OPERATION.

In the treatment of hemorrhoids it was recommended that after widely dilating the sphincter with the fingers under surgical anesthesia, a large semicircular needle should be passed subcutaneously from the muco-cutaneous line to the upper border of the pile-bearing area, and then returned so as to make its exit at the point of entrance. The needle is then removed and the silk ligature made tight about the venous plexus, and the ends left hanging out. These ligatures may be from one-half to an inch apart as the case may require. It is not necessary to tie all the varices in this way, as the atrophic changes will necessarily obliterate the remaining ones. No tissue is sacrificed; the mucous membrane remains intact; there is no hemorrhage, no infection, no pain of consequence, and there is practically no loss of time. The sutures are allowed to come away of their own accord. The operations performed in this way have resulted in an absolute cure, and the patients have experienced but little pain during the life of the ligature.

Prolapsed rectum is treated in the same manner, except that a greater number of ligatures are required. If they are properly and evenly adjusted, the atrophy of the tissues is symmetric and the pathologic condition is relieved without stenosis.

DR. WM. PEPPER, of Philadelphia, delivered the Address on Medicine. His subject was

DANIEL DRAKE, OR THEN AND NOW.

Daniel Drake died in Cincinnati in 1852. He was universally recognized as the leading medical man of the West. He graduated at the University of Pennsylvania in 1816; the exceptional honor of a special commencement held for this purpose being granted to him. He had already practised medicine for twelve years without a diploma, and had won a high reputation by his scientific and literary work. Dr. Drake received no fewer than thirteen separate calls to medical professorships and actually held at different times nine chairs in five separate institutions, in Cincinnati, Lexington, Louisville, and the Jefferson Medical College in Philadelphia. Dr. Gross, who was a colleague in two institutions, pronounced him the most forceful and eloquent teacher he had ever known.

DR. J. HOMER COULTER, of Chicago, read a paper entitled

THE DEFLECTED SEPTUM AND ITS REPAIR.

He first dwelt upon the etiology of the condition. In stenosis of any degree there is with each inspiration created within the nasal cavity a more or less complete

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vacuum. Thus the atmospheric pressure is to that degree increased and is a constant force of no inconsiderable gravity. It was further contended that such a force would be more efficient in producing structural changes in the cartilaginous septum than would a more violent force suddenly applied, because the natural cartilaginous resiliency would more easily recover and throw off the effect of the latter. Some points in the operation were dwelt upon, because in the observance of these lies the success of the operator. When the deviation is well anterior or involving merely the alæ, it is very much simplified because of convenience in operating and after-treatment as well. Until recent years but little attention was paid to the preservation of the mucous membrane when operating on a deflected septum. A new form of punch was suggested for removing the cartilage and leaving the membrane intact.

DR. W. F. BREAKEY, of Ann Arbor, Mich., read a paper entitled

A CASE OF COMMINUTED FRACTURE OF THE ILIUM, WITH SPECIMEN AND PHOTOGRAPHS.

(See page 375.)

DR. HAL C. WYMAN, of Detroit, read a paper entitled

THE TREATMENT OF CARCINOMA.

He urged early removal, while the disease is local.

DR. LEWIS C. CLINE, of Indianapolis, read a paper entitled

LARYNGITIS FROM A RHINOLOGIC STANDPOINT.

He applies the affix *itis* only to inflammations of a purely catarrhal character, which excludes at once syphilis, tuberculosis, and other constitutional diseases, as they are more properly described by their specific designations. The cases that are least amenable to treatment are the atrophic, but much can be done to comfort and palliate these cases by attention to dress and by stimulant and lubricant applications. As a stimulant and astringent, he finds nothing equal to silver nitrate, from 10 to 40 grains to the ounce, according to indications. When the condition is due to overwork, the first law is rest, with occasional mild, stimulating applications with an atomizer. The great majority of cases that had come under his observation had had atrophic or hypertrophic rhinitis to a greater or less degree. Spurs and deflected septa are often associated with these conditions. The lesions most frequently observed are hypertrophies of the posterior ends of the inferior turbinate body, and a thickened, lumpy condition of the posterior end of the septum. The drill, saw, snare, and galvano-cautery are aids in removing these conditions in the more aggravated forms, while the application of silver and various astringents by means of sprays had served well in the mild form.

DR. J. A. WESSINGER, of Ann Arbor, Mich., contributed a paper on

THE THERAPEUTICS OF OLEO-CREOSOTE AND CREOSOTE CARBONATE.

He summed up his experience with these remedies in the following conclusions: 1. The dosage is practically unlimited as far as toxicity is concerned, but it is preferable to begin with a small dosage, from two to three drops after eating, and increase until the desired result is obtained. 2. To be of value in tuberculosis, a clinical diagnosis must be made early. 3. While these agents are distinctly germicidal, they also serve as tissue-builders. 4. Creosote carbonate and oleate have the power of increasing the number of red blood-corpuscles, and they also increase the percentage of hemoglobin in the blood.

DR. I. N. LOVE, of St. Louis, read a paper entitled

THE BICYCLE FROM A MEDICAL STANDPOINT.

He contended that bicyclists should understand the importance of going reasonably slow. The wheel brings into play all the muscles, and the maintaining of equipoise has beneficial results. The matter of position is important. The rider should maintain an erect posture and not assume an unsightly stoop in imitation of the hoop-snake, which takes its tail in its mouth and sails through the country. A study of the question of the wheel for women had resulted in an opinion favorable to its moderate use in cases of acute diseases. Specialists had agreed to this. Numerous cases of long-standing pelvic disease had been benefited by a judicious use of the bicycle. Women maintain a better position than men. An hour's wheeling three times a day is ample. The costume is important from the standpoints of health and art.

The discussion was participated in by Dr. C. B. Parker, of Cleveland; Dr. W. M. Wishard, of Indianapolis; Dr. Sterne, of Indianapolis; Dr. Walker, of Evansville, Ind., who all advocated and advised a moderate use of the wheel for both men and women.

DR. T. O. SUMMERS, of St. Louis, read a paper entitled

THE PHYSIOLOGIC ASPECTS OF LEUKOCYTOSIS.

DR. A. GOLDSPOHN, of Chicago, read a paper entitled

THE PROPER INDICATIONS FOR REPAIR OF PATHOLOGIC LACERATIONS OF THE CERVIX UTERI, AND FOR THE RELIEF OF PATHOLOGIC ANTEFLEXIONS AND THE PROPER OPERATIONS TO MEET THEM.

The Nominating Committee reported as follows, and the report was adopted:

*President*, Dr. H. O. Walker, Detroit. *First Vice-President*, Dr. B. M. Ricketts, Cincinnati. *Second Vice-President*, Dr. F. C. Woodburn, Indianapolis. *Secretary*, Dr. H. W. Loeb, St. Louis. *Treasurer*, Dr. H. N. Moyer, Chicago. *Judicial Council*, Drs. W. M. Wishard, T. E. Holland, and A. P. Buchman.

The Nominating Committee also submitted the following resolutions:

*Resolved*, That it is the sense of this Committee that the best interests of the Association will be subserved by the appointment of a permanent Executive Committee, composed of the titulary officers of the Association and the ex-presidents, and that this Committee shall conduct all the business of the Association; be it further

*Resolved*, That we recommend the creation of the office of Assistant Secretary, to be appointed by the Chairman of the Committee of Arrangements from the place in which the meeting is held.

On motion, the Association adjourned to meet in St. Paul, Minn., on the third Tuesday of October, 1896. Dr. C. A. Wheaton, of St. Paul, was selected Chairman of the Committee of Arrangements.

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## AMERICAN ORTHOPEDIC ASSOCIATION.

*Ninth Annual Meeting, Held in Chicago, September 17, 18, and 19, 1895.*

(Concluded from page 363.)

Dr. James Kerr, of Washington, D. C., followed with a paper entitled

### JOINT-DISABILITY FOLLOWING FRACTURES.

Dr. R. W. Lovett, of Boston, read a paper entitled

### AMBULATORY TREATMENT OF POTT'S DISEASE.

He considers this disease a very grave one, which ought to be treated largely by recumbency during the active stage, for the reason that existing apparatus is intrinsically imperfect on account of the nature of the problem. Apparatus is to be used in a small way to vary the monotony of recumbency. Used in any way it should be remembered that the position of the superincumbent weight is a most important matter, and that the chest and head should be thrown as far back as possible. Indeed, nature is continually trying to throw the chin into this position. It should also be remembered that the higher up the body or the more nearly backward the pull is made, the less force is required, and that when this limitation in the use of apparatus is accepted, its field will be more limited than it is now. The use of traction during recumbency seems an advantage, inasmuch as it adds but little to the discomfort of the child and manifestly increases the length, which it can only do by diminishing the curvature of the vertebral column.

Dr. A. E. Hoadley, of Chicago, exhibited and described a new

### SPINE-BRACE,

designed and adapted for the mechanical support of the middle region of the spine. The range of its greatest utility is the support that it affords to the spinal column between the middle of the lumbar and the middle of the dorsal region, although its usefulness is not strictly confined to these limits. Inasmuch as the greater number of diseases of the spinal column requiring mechanical fixation occur within this region, the usefulness of the brace will be comparatively very great, if it is found to be efficient. In its simplest form the brace consists of a steel frame, a rigid chest-pad, and two aprons. The chest-pad is so adjusted in contour as to fit the upper anterior portion of the chest. The pad is in length about three times its width and is adjusted transversely, resting immediately below the sterno-clavicular articulations. Its real length transversely should be as great as is practicable without being interfered with by the action of the pectoralis major muscles in the movement of the shoulder. It should be made of sheet-metal, hammered to give shape and rigidity, covered and lightly padded.

Dr. Reginald H. Sayre, of New York, read a

### REPORT OF FOUR CASES OF SPONDYLITIS OF THE SECOND CERVICAL VERTEBRA.

Three years ago he brought before the Association some cases of spondylitis of the second cervical vertebra, coming under observation within a few months and presenting almost identical lesions, accompanied by similar deformities. These cases had now been without apparatus to support the head for a number of months. In all there was noted a small swelling at the back of the neck, at the level of the first or second cervical vertebra, which in each instance happened to be on the right side of the neck. In each case the chin was directed toward the right side of the body; the right sterno-mastoid muscle was rigid; the face looked downward; while the left ear was brought much nearer the corresponding shoulder than its fellow. In one instance the face was deflected so far from the perpendicular as to be almost parallel with the floor, and pressed so closely against the clavicle as to cause an excoriation. The position of the head was in marked contrast with that assumed by patients with torticollis due to contraction of the right sterno-mastoid muscle. Motions of the head in any direction were excessively painful, and the patients supported their heads with their hands almost incessantly. In turning to view any object, the entire body moved as a solid mass, without any rotation of the head. The jaw was opened with great difficulty in all of the cases. At the present time in all but one of the cases the patients can open their mouths freely, and this one has much more control of the mouth than formerly, and is enabled to swallow with much more ease. In all the cases the chin was so much depressed as to make swallowing difficult. These cases were treated by means of a support consisting of a pelvic belt, with two upright back bars passing upward over the shoulders, and held in position by shoulder-straps and an apron. From this an extension-rod passed from between the shoulders to the base of the skull, where it joined a rolled metal band passing around the head and secured in position by a forehead-strap and a strap passing under the jaw from ear to ear. Universal joints at the back of the neck and between the shoulder-blades allowed the adjustment of this apparatus to any position of the head, while the distance between the head-piece and the body-piece was regulated by a ratchet-and-key extension. Three cases at the present time seem practically well, and since the removal of the support the range of motion of the neck has increased in all directions, and there has been no return of pain.

Dr. A. M. Phelps, of New York, followed with some remarks on a

### STUDY OF THE ANTERIOR FORMS AND BURROWINGS OF LUMBAR ABSCESSES.

Dr. S. L. McCurdy, of Pittsburg, described and exhibited a

### COMBINATION TRACTION AND IMMOBILIZATION HIP-JOINT BRACE.

He said that protection is afforded a diseased joint by confining the patient either in bed or in some portable appliance or brace that serves the same purpose. Immobilization is afforded by the use of plaster-of-Paris, the cuirass of Bauer, the portable bed of Phelps, or of Bradford and Lovett, or a Thomas hip-splint. Traction is of the utmost importance during the early stage to overcome muscular spasm, and secondly interarticular pressure, and ultimately to relieve pain, and during the stage of dissolution of bone to prevent shortening and angular deformity. In order then to apply traction, as well as immobilization, to the hip-joint in disease, Dr. McCurdy has devised a combination of the long traction hip-splint and the Thomas splint.

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DR. JOHN D. SKEER, of Chicago, exhibited by invitation a

NEW SURGICAL SAW,

and made some remarks relative to its use. He said that when there is non-union of the bones after excision of the knee-joint we have conditions that may give rise to any degree of deformity. Any procedure that will prevent the rotation and backward displacement of the tibia, without the interposition of any foreign body between the cut surfaces of the bones, will contribute to the success of the operation. If the tibia were cut off slightly concave and the femur correspondingly convex, the bones would lock together in such a way as to prevent rotation and the backward displacement of the tibia. This method of joining the bones together was first practised by Dr. Fenwick, of Montreal, in 1868, and published in the *International Encyclopedia of Surgery*. The doctor used a fretwork saw adapted to a butcher's frame, and states that the "bones should be accurately adjusted, and if they do not fit nicely saw off a thin slice from either or both of the bones, and if necessary remove thin slices with the cartilage-knife."

Objection has been urged against Fenwick's operation, for the reason that pockets have been found between the ends of the bones, in which matter accumulated and prevented union. Dr. Skeer apprehends that the pockets and irregular open spaces were made with the narrow saw and the cartilage-knife at the time of the operation. He proposes to improve the technic of this operation by making the sections with a concavo-convex saw which he has devised for that purpose, and which cuts a true circle, so that when the cut surfaces of the bones are brought together they will coaptate with mathematic accuracy. The saw-blade is nine inches long and two inches broad, curved on the flat, with a concavity of one-fourth of an inch.

DR. W. O. PLIMPTON, of New York, read a paper entitled

EXCISION OF THE KNEE AS AN ORTHOPEDIC PROCEDURE.

He said that the success of the operation is no longer an experiment when performed under right conditions and by a skilful operator, and should save not only limbs but also lives. Too much cannot be said in favor of early treatment by mechanical and fixation methods in disease of the knee-joint. If the profession at large recognized disease of this joint in its incipiency and employed extension and fixation methods of treatment, comparatively few cases would advance so far as to necessitate excision. It is the duty of the teacher of orthopedic surgery to lay special stress upon the early recognition, as well as the early mechanical treatment, of these diseases. When the fixation-and-extension plan of treatment has been conscientiously tried and has not arrested the disease, the surgeon should explore the joint and do whatever the conditions demand, whether to wash out or to excise. When the articular surfaces are destroyed, the bone and the soft parts extensively involved, the joints should be excised.

In the series of excisions reported there were several examples of great destruction from osteomyelitis and tuberculous disease, in which amputation was avoided and several inches saved in the length of the limb by allowing the cavity to fill and the clot to organize. In one case of osteomyelitis seven inches of bone were reproduced. In determining what operation for excision of the knee best subserves the requirements, it may be said that that method which allows of the most complete removal of all diseased tissue and affords perfect drainage retains the parts in best apposition and fixes the bones without the use of pins or wire, and last but not least the one that can be performed with the greatest ease and rapidity is to be preferred. Fenwick's operation fulfils all requirements with a few exceptions. When the head of the femur is destroyed, precluding the section according to Fenwick, Phelps has devised a method to meet this condition by sawing a wedge at the end of the femur and a V in the tibia for its reception. The length of time taken for excision of the knee is an important element with regard to the mortality of the operation, as the shock of the operation in excision of the knee must of necessity be profound. It was said that Dr. Phelps did not consume on an average more than fifteen minutes in excisions of the knee, except in exceptionally bad cases. He has, in fact, effected an excision in ten minutes from the time the first incision was made until the last plaster bandage was in place.

DR. A. J. STEELE, of St. Louis, exhibited

AN APPARATUS FOR THE TREATMENT OF CLUB-FOOT, AND TWO CONTRIVANCES TO BE USED IN HEAD-TRACTION AND IN HIP-TRACTION.

DR. LOUIS A. WEIGEL, of Rochester, N. Y., read a paper entitled

MECHANICAL SUPPORT IN THE TREATMENT OF SCOLIOSIS.

He said that when a bony distortion has taken place of slight degree it can be easily understood that the superincumbent weight falling upon an inclined plane must of necessity increase the deformity, and any plan of treatment that will endeavor to relieve the spine of this adverse factor is certainly a rational one. It was contended that mechanical support may be worn for an indefinite length of time without producing atrophy, and that in spite of an appliance exceedingly good muscular development may be secured. If this can be shown, the principal objections against appliances will be done away with. The belief was expressed that a mechanical appliance can be used with as much benefit and be made to do its work and be worn as comfortably on the back as on the legs.

The following officers were elected:

*President*—Dr. Royal Whitman, of New York. *First Vice-President*—Dr. George W. Ryan, of Cincinnati. *Second Vice-President*—Dr. Joel E. Goldthwait, of Boston. *Secretary*—Dr. John Ridlon, of Chicago. *Treasurer*—Dr. E. G. Brackett, of Boston.

The next meeting will be held at Buffalo in the third week of May, 1896.

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***Louis Pasteur***, the distinguished scientist, died at Paris on September 28th, at the age of seventy-two years. Among his most noteworthy work was an investigation into the morphology of bodies having a crystalline structure, his studies in fermentation, the discovery of the silkworm-parasite, of the parasite of chicken-cholera and a means for eradicating the disease by inoculation, and the treatment of hydrophobia by inoculation.

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## AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

*Eighth Annual Meeting, Held in Chicago, September 24, 25, and 26, 1895.*

THE Association was called to order by the President, DR. J. HENRY CARSTENS, of Detroit, Mich.

After an Address of Welcome by DR. WILLIAM E. QUINE, of Chicago, and a response by the President, the reading of papers was proceeded with.

DR. JAMES F. W. ROSS, of Toronto, read a paper entitled

### BILATERAL SUPPURATIVE PAROTIDITIS.

He narrated a case in which, on the tenth day after vaginal hysterectomy, the temperature rose to 103°, and a swelling in each parotid gland presented itself. The swelling gradually increased. The sides of the face became enormously swollen, the eyelids were puffed, and the patient could scarcely separate them. Double parotiditis is seen occasionally as one of the sequelæ of the infectious diseases, a distinctly septic affection. It is difficult to believe that the removal of the ovaries can produce a parotiditis. If parotiditis has a peculiar tendency to follow the removal of the uterus, we should have sufficient data upon the subject to make us well aware of this fact also.

DR. EDWIN RICKETTS, of Cincinnati, related a similar case in which, two days after the removal of diseased appendages, double parotiditis made its appearance.

DR. C. C. FREDERICK, of Buffalo, saw a case in the practice of a prominent practitioner in Buffalo a few years ago in which a double parotiditis followed ovariectomy. The woman made a good recovery. There was no suppuration in the case.

DR. JAMES F. BALDWIN, of Columbus, narrated an instance in which the parotiditis was limited to the left side, having followed a vaginal hysterectomy about the third day, and being accompanied by elevation of temperature, pain, and swelling.

DR. W. G. MACDONALD, of Albany, said that parotiditis associated with the removal of the uterine appendages is not a new thing. Among the earlier operators it was not an unusual or uncommon complication. The patients, however, usually died. He saw one case following a supravaginal hysterectomy. He had also seen the complication after amputations of the thigh.

DR. JOHN M. AULD, of Chicago, had seen one case of non-suppurative parotiditis of one side, following perineorrhaphy and operation for hemorrhoids.

DR. H. W. LONGYEAR, of Detroit, had seen parotiditis associated with typhoid fever.

DR. A. H. CORDIER, of Kansas City, Mo., said that parotiditis occurs with greater frequency than is supposed in connection with operations involving the ovaries and tubes. He is inclined to believe that there is a sympathetic relationship between the ovaries and the parotid gland.

DR. A. H. FERGUSON, of Chicago, asked as to the condition of the patient's mouth at the time of the parotiditis. In scarlet fever, diphtheria, and a number of diseases associated with disease of the uterine appendages, extension takes place to the parotid gland. In such cases the mouth is foul, and if it can be kept clean parotiditis is not so likely to occur.

DR. ROSS said it is well known that the parotid gland, the thyroid gland, and the submaxillary gland frequently become inflamed in association with inflammatory disease of the testicles; but as to inflammation of the ovaries we are not so sure. He could not say as to the condition of his patient's mouth at the time of operation.

DR. A. B. MILLER, of Syracuse, N. Y., read a paper entitled

### INTERMEDIATE TREATMENT OF PUERPERAL SEPSIS.

He summarized his views as follows: (1) Suspected infection of the birth-canal should be confirmed when possible by a bacteriologic examination of the vaginal secretions, and every means of differentiating it from other affections should be resorted to, that it may be treated rationally either by medicine or surgery. (2) Irrigation and antiseptics destroy the nutrition of the parts when continued, and, furnishing increased moisture, improve the field for the development of micro-organisms, aside from the danger of death resulting from the antiseptic used. (3) The birth-canal can be kept comparatively dry by absorbent dressing, removing the culture-media, and arresting the development of germs and infection until the abraded parts have been repaired.

DR. L. S. MCMURTRY, of Louisville, Ky., followed with a paper on

### THE INDICATIONS FOR OPERATION IN PUERPERAL SEPSIS.

He said that since operative surgery a few years ago disclosed the various lesions of pelvic disease, it has been known that pregnancy and the puerperal state may be complicated by pre-existing inflammatory diseases of the uterine appendages, tumors, and septic accumulations inside the pelvis. Chronic and circumscribed disease of this character may be converted into acute and diffuse inflammatory conditions by the trauma of labor. Puerperal sepsis may in this way be the result of pre-existing disease. This class of cases must necessarily be small, as women thus diseased are, as a rule, sterile. That such cases necessarily come within the scope of operative treatment will be generally conceded. The indications and guides for operative interference in this class of cases were then considered. In all cases of puerperal sepsis the most careful examination of the pelvic organs should be made.

In conclusion, allusion was made to the class of puerperal cases wherein the local symptoms are those of diffuse peritonitis without localization of lesions, but in which the uterus is presumably the focus of infection. This class of cases has recently been discussed extensively in relation to treatment by hysterectomy. Empiric operations in surgery are likely to prove more disastrous than similar methods of treatment in medicine. The gravity of such cases may often justify exploration and drainage, but the more extensive operation of hysterectomy will almost invariably prove disastrous.

DR. W. E. B. DAVIS, of Birmingham, said with reference to cases of puerperal sepsis, in which the temperature runs high, that they usually die in from a week to ten days, and he believes surgery offers very little hope.

DR. HERMAN E. HAYD, of Buffalo, said that when a septic condition arises in the endometrium, or when there remains a portion of the placenta which breaks down, he is satisfied that a sharp curet should be used.

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With such an instrument the surgeon can scrape away a good piece of tissue and yet do very little harm.

DR. WM. WARREN POTTER, of Buffalo, said there is no puerperal fever except that due to infection; that if the history of these cases was carefully traced, the gynecologist would find underlying somewhere infection, which may be carried into the genital tract either by the obstetrician himself or by the environment of the puerperal woman; hence the great collateral interest lying closely alongside this subject is the one of preventive medicine. The important question is aseptic midwifery. If aseptic midwifery were practised in every case, there would be no puerperal sepsis and no ophthalmia neonatorum.

DR. W. P. MANTON, of Detroit, had never had in his private practice a case of puerperal sepsis. The curet is an instrument that, if properly used, is absolutely devoid of harm.

DR H. W. LONGYEAR believed that when the uterus is packed full of gauze the flow of mucus, blood, and serum is prevented. While more or less serum may possibly come away, fragments of placenta or bloodclots will certainly be retained. Rise of temperature, etc., should not be an indication for surgical interference in puerperal sepsis.

DR. WM. H. MYERS, of Fort Wayne, emphasized the importance of differentiating between septicemia and pyemia.

DR. C. C. FREDERICK said that out of forty cases of puerperal septicemia that he had seen in consultation in the last eight years, only two had died. Nothing could be found in the uterus, and there were hardly any localized symptoms.

DR. JAMES F. W. ROSS, of Toronto, dwelt upon the importance of the subject, inasmuch as a new craze at the present time has seized the profession—that of taking out the uterus in cases in which it is unnecessary, in his opinion, to remove that organ. The pendulum has swung too far, as it did when the removal of the ovaries was undertaken for vague symptoms, and the Association should take some means of swinging it back again to its normal position.

DR. W. G. MACDONALD, of Albany, related a case in which he favored the use of the sharp curet.

DR. SHERWOOD DUNN, late of Paris, France, said that in the Broca Hospital, Paris, there are 184 beds, 48 of which are devoted to obstetric cases. In his three-years' connection with the hospital-service there no case of confinement had ever been followed by any septic condition.

DR. A. J. BURGESS, of Milwaukee, said that in cases of uterine traumatism, especially in abortions, when there are retained septic tampons within the uterus, it is absolutely impossible to curet them away with a dull instrument. He has seen the dull curet used for half an hour at a time, and yet two days afterward pieces of membranes or clots had come away the size of a hen's egg. With a sharp curet everything can be removed.

DR. A. H. CORDIER, of Kansas City, Mo., emphasized the importance of treating every case of puerperal sepsis as an individual one. When surgical interference is called for, it must be resorted to early if we expect to save lives.

DR. G. E. KRIEGER, of Chicago, predicted that in time we would treat puerperal sepsis very much in the same manner as we treat diphtheria with serum.

DR. J. HENRY CARSTENS, of Detroit, emphasized the importance of differentiating between the different forms of infection. While the obstetrician may in some cases infect his patient, he believes in auto-infection. He thinks a sharp curet is not necessary for removing the shreds of membrane or other débris that may be left.

DR. FREDERICK BLUME, of Pittsburg, said that it had been proved years ago that in 50 per cent. of healthy women there were found streptococci or other pathogenic micro-organisms in the vagina. He uses a sharp curet for curetting the uterus.

DR. MARCUS ROSENWASSER, of Cleveland, O., read a paper entitled

### EXCEPTIONAL LOCATION OF THE BLOODCLOT IN A CASE OF RUPTURED ECTOPIC PREGNANCY.

The case reported was presented with the hope that the knowledge of such possibility might prevent future confusion of an otherwise clear diagnosis.

DR. H. W. LONGYEAR, of Detroit, reported a case in which a woman bled for several months. On opening the abdomen the cavity was found filled with blood and clots, and after a tedious operation he was compelled to leave some of the clots in the abdomen. The patient died of shock some three or four hours after the operation.

DR. JAMES F. W. ROSS, of Toronto, reported a case of acute general peritonitis produced by the rupture of a suppurating clot. After an ectopic gestation this clot was found lying in the neighborhood of the broad ligament, and was not at all connected with the tube.

DR. EDWIN RICKETTS, of Cincinnati, said that the cases reported showed the importance of the earliest possible diagnosis. The subjective symptoms should be more carefully considered.

DR. W. E. B. DAVIS, of Birmingham, related a case, in the wife of a physician, who was delivered at full term of a uterine pregnancy. Then a mass was detected in the right lumbar region, which continued to grow larger. The patient was losing blood. Operation revealed a second ectopic gestation. The bleeding was easily controlled, and a rapid operation was undertaken, but the patient died from shock.

DR. RUFUS B. HALL, of Cincinnati, emphasized the necessity of early operation, or, at least, an early exploration in all instances of obscure abdominal disease. After an experience of fifteen operations for ectopic pregnancy, he is more and more convinced of the necessity of early operative interference.

DR. THOMAS J. MAXWELL, of Keokuk, Ia., called attention to transfusion with common salt-solution to tide over severe cases of hemorrhage.

DR. L. H. DUNNING, of Indianapolis, followed with a paper entitled

### RUPTURED INTESTINAL PREGNANCY.

After describing a case in detail, he presented the following conclusions: 1. Ruptured tubo-uterine pregnancy is more frequently fatal than ruptured tubal pregnancy, for the reason that in the latter case the rupture frequently takes place through the abdominal end of the tube, in which case but slightly vascular adventitious tissue is torn, while in the former case vascular uterine tissue is torn. Again, in tubal pregnancy not infrequently the rupture takes place through the inferior surface of the tube into the folds of the broad ligaments,

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and thus the amount of hemorrhage is limited, while in tubo-uterine pregnancy such a rupture is rare. 2. In ruptured tubo-uterine pregnancy before the fifth month, unless the abdominal section is made early, the anemia will be profound, so that the patient will be unable to withstand any operation involving prolonged anesthesia and manipulation. The operation should be as free from shock as possible. 3. There is no pedicle to tie. 4. All actively bleeding-points must be secured by ligature. 5. Mr. Tait proposes hysterectomy as a proper procedure in such a case. Unquestionably, if the patient is not too greatly shocked or anemic, such a procedure would be clearly indicated. 6. As a measure attended with less risk of shock, Dr. Dunning proposes the tying of bleeding arteries, clearing the gestation-cavity of the ovum, establishing free communication between the gestation-cavity and the uterine cavity, and free drainage by means of tube and gauze, and finally closing the rent in the uterine wall by deep and half-deep sutures, or by Czerny and Lembert stitches; or, instead of this method of closure, the stitching of the walls of the gestation-cavity to the lower angle of the incision, with drainage from above and through the uterine cavity, and finally closure of the upper opening by tying deep sutures placed and left untied at the time of the operation. This latter method will probably be found applicable only in a limited number of cases, namely, in those in which the uterus is freely movable and can be brought to the abdominal wall without tension. Whether the methods proposed have ever been employed is not known, and whether they will prove of value a trial must demonstrate.

Dr. T. J. Watkins, of Chicago, had met with a number of cases of extrauterine pregnancy, but none of interstitial pregnancy with rupture. He had one case in which the tube had ruptured and the placenta had grown fast to the cornu of the uterus, and in which it was impossible to form a pedicle, the condition in the case being similar to that of an interstitial pregnancy.

Dr. Byron Robinson, of Chicago, said that so far as operating on these cases is concerned it seems to him that anything other than hysterectomy means death to the woman.

Dr. Henry T. Byford, of Chicago, said that while he had never encountered a case of interstitial pregnancy, it was very essential to know how to proceed in such cases by surgical interference.

Dr. A. H. Cordier, of Kansas City, Mo., had seen one case of interstitial pregnancy in the practice of Dr. Lanphear, the uterus containing in addition several fibroids. Abdominal hysterectomy was performed.

Dr. E. T. Tappey, of Detroit, read a paper entitled

### INTRAPERITONEAL ADHESIONS.

He said that abdominal surgery in the last few years had established, among other things, that many of the pains, vague, uncomfortable feelings, and so-called dyspepsias are caused by adhesions of various organs in the abdominal and pelvic cavities. The question of diagnosis is often perplexing, and in many instances impossible without abdominal section. Whenever there is pain, and palpation does not reveal any tumor or other enlargement, adhesions are one of the possible causes. The belief was expressed that it would be proper to subject cases of chronic dyspepsia, chronic and obstinate constipation, and cases of persistent pain caused by the accumulation of flatus, to exploratory incision to determine whether there be adhesions and for the purpose of severing them.

Dr. W. G. MacDonald, of Albany, read a paper entitled

### INTESTINAL OBSTRUCTIONS—CLINICAL OBSERVATIONS.

He said that in no other branch of abdominal surgery is precise diagnosis so difficult or operative procedure more taxing to the ingenuity of the surgeon. At the present time surgeons of experience are quite unwilling to give a definite opinion until the abdomen is opened and closed. There is a large group of cases of ileus which may be regarded as purely symptomatic, a condition in which the continuity of the intestinal tube is interrupted, but the obstruction is due to conditions of paralysis in the intestinal wall.

The treatment cannot always be preventive, from conditions that arise during operations. The enucleation of pus-tubes or an extra-uterine pregnancy involves the leaving of extensive denuded surfaces to which intestines readily attach themselves, and those who have made secondary section can readily testify to the number of innocent adhesions found as a result of primary operations.

Dr. Edward J. Ill, of Newark, read a paper entitled

### A CLINICAL CONTRIBUTION TO THE STUDY OF THE LATERAL DISPLACEMENTS OF THE UTERUS.

After reviewing the literature, reference was made to the importance of this abnormal condition, which it was thought had been generally overlooked, the patient's symptoms being attributed to other ailments. He had collected from his last year's office case-book all cases of lateral displacement except such as come with tumors. In 14.2 per cent. there was lateral displacement. Especial attention was directed to those cases that were considered congenital and in which the pain is referred to the elongated broad ligament. The symptoms begin early in the patient's sexual life, in severer cases progressing gradually to complete invalidism. Several histories were read and a typical case described. The non-operative treatment consists in endeavoring to elongate the shortened ligament by the use of dry-wool or oakum tampons pushed between the cervix and the ilium on the side of the shortened ligament, keeping the tampon in place by a second and a third one. All this is to be retained for forty-eight hours. A hot douche, with the patient on her knees and elbows, twice daily, when the tampons are *in situ*, is also ordered. Two cases were related of extreme suffering in which total extirpation of the uterus, tubes, ovaries, and broad ligament was deemed advisable after years of unsuccessful treatment, and both of which are much relieved of their suffering.

Dr. X. O. Werder, of Pittsburg, read a paper on

### SOME OF THE INDICATIONS AND ADVANTAGES OF VAGINAL HYSTERO-SALPINGO-OÖPHORECTOMY.

He said that the operative results in suppurative disease of the pelvis in the hands of the abdominal surgeon form one of the proudest chapters in modern surgery.

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While a more careful technic and a more thorough operation had lessened the number of fatal cases, they had not been entirely eliminated. Hysterectomy with salpingo-oöphorectomy in suppurative disease of the pelvis not only allows us to remove the nidus of infection more completely, but it gives the patient the very best chance for complete recovery, without adding any additional risk to the operation. The mortality compares favorably with that of salpingo-oöphorectomy alone. The opinion was expressed that hystero-salpingo-oöphorectomy is unquestionably the operation of the future; but whether vaginal or abdominal, still remains *sub judice*. The vaginal method has many features to recommend it. It precludes the possibility of ventral hernia and of intestinal and omental adhesions in the line of incision; and is followed by less shock because of the minimum exposure of the peritoneum during the operation, and absence of manipulation of the abdominal viscera. Convalescence is more rapid, and recovery more complete. Two cases of vaginal hysterectomy were then reported.

(To be concluded.)

# NEWS ITEMS.

***Meetings of Philadelphia Medical Societies:***

| | Meets. | Next meeting. |
|---|---|---|
| Academy of Surgery, | 1st Monday of month, Oct.—June. | Oct. 7 |
| College of Physicians, | 1st Wednesday of month, Oct.—June. | Nov. 6 |
| Section of Gynecology, | 3d Thursday of month, Oct.—June. | Oct. 17 |
| Section of Ophthalmology, | 3d Tuesday of month, Sept.—May. | Oct. 15 |
| Section of Orthopedic Surgery, | 3d Friday of month, Oct.—April. | Oct. 28 |
| Section of Otology, | 1st Tuesday of month, Oct.—May. | Nov. 5 |
| Section of Surgery, | 2d Friday of month, Oct.—May. | Oct. 11 |
| County Medical Society, | 2d and 4th Wednesdays of month, Sept.—June. | Oct. 9 |
| Neurological Society, | 4th Monday of month, Oct.—April. | Oct. 18 |
| Obstetrical Society, | 1st Thursday of month, Sept.—June. | Nov. 7 |
| Pathological Society, | 2d and 4th Thursdays of month, Sept.—June. | Oct. 10 |

***The Canadian Medical Association*** has elected the following officers for 1895–96: *President*, James Thorburn, Toronto. *Vice-Presidents*, for Prince Edward Island, James Warburton, Charlottetown; for Nova Scotia, William Tobin, Halifax; for New Brunswick, W. W. White, St. John; for Quebec, Hon. D. Marcil, Quebec; for Ontario, Fife Fowler, Kingston; for Manitoba, H. H. Chown, Winnipeg; for Northwest Territory, G. Brett, Banff; for British Columbia, R. E. McKechnie, Nanaimo. *General Secretary*, F. N. G. Starr, Toronto. *Local Secretaries*, for Prince Edward Island, H. D. Johnson, Charlottetown; for Nova Scotia, G. C. Jones, Halifax; for New Brunswick, William Christie, St. John; for Quebec, J. G. McCarthy, Montreal; for Ontario, John H. Mathieson, St. Mary's: for Manitoba, W. J. Neilson, Winnipeg; for Northwest Territory, George Macdonald, Calgary; for British Columbia, W. A. Richardson, Victoria. *Treasurer*, H. B. Small, Ottawa. The place of meeting in 1896 is Montreal.

***Medical Students at Philadelphia.***—The following estimate has been made of the number of medical students attending the several schools of Philadelphia, together with the number in attendance during the last session:

| | 1895–96. | 1894–95. |
|---|---|---|
| University of Pennsylvania | 900 | 865 |
| Jefferson Medical College | 725 | 700 |
| Medico-Chirurgical College | 350 | 225 |
| Hahnemann Medical College | 285 | 260 |
| Women's Medical College | 200 | 175 |
| Philadelphia Polyclinic | 150 | 120 |
| | 2610 | 2345 |

***The Riverside Baths.***—Since the opening of the Riverside Baths in New York City in last February over 15,000 baths have been taken, including 1250 Turkish baths, and over 1230 hydriatric treatments. The baths are open daily throughout the year, and have attached a free library and reading-room, a kindergarten, and a playground for little children. The success of the institution is in no small measure due to the energy and personal interest of the Chairman of the Bath Committee, Dr. Simon Baruch. The fees are nominal, ranging from three to twenty-five cents, and provision is made for those unable to pay.

***Dr. John R. Angney***, a retired physician of Philadelphia and an ex-member of the Board of Guardians of the Poor, of the Board of Education, and of the Fifth Sectional School Board, died on September 29th, aged seventy-six years.

## BOOKS AND PAMPHLETS RECEIVED.

Reports. Friends' Asylum for the Insane, 1895.

Report of the Dairy Commissioner of the State of New Jersey for the Year 1894. Trenton, N. J.: MacCrellish & Quigley, Printers, 1895.

De la Symphyséotomie a la Clinique Baudelocque Pendant l'Année, 1894. Par le Dr. A. Pinard. Extrait des Ann. de Gynécologie et d'Obstétrique, 1895

Fonctionnement de la Maison d'Accouchements Baudelocque Clinique de la Faculté Dirigée. Par le Professeur Adolph Pinard. Année, 1894. Paris: G. Steinheil, 1895.

Headache. By John Welsh Croskey, M.D. Reprinted from Wills Hospital Reports, Vol. I, No. 1, 1895.

An Aural Masseur. By Chevalier Jackson, M.D. Reprinted from the Journal of the American Medical Association, 1895.

Report of the American Humane Association on Vivisection and Dissection in Schools. Chicago, 1895.

The Water-supply of Philadelphia and Camden. By Joseph Wharton. Pamphlet. Philadelphia, 1895.

Camphor-menthol; a Supplementary Report. By Seth Scott Bishop, M.D. Reprinted from the Journal of the American Medical Association, 1895.

Improved Double Retractors. By Seth Scott Bishop, M.D. Reprinted from the Chicago Medical Recorder, 1895.

Grip, and its Effects on the Nose, Throat, and Ear. By Seth Scott Bishop, M.D. Reprinted from Medicine, 1895.

Amputation of the Metacarpal Bone in Continuity, for Injuries of the Middle and Ring Fingers. By Claude A. Dundore, M.D. Reprinted from the Codex Medicus Philadelphiæ, 1895.

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# THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXVII. SATURDAY, OCTOBER 12, 1895. No. 15.

## ORIGINAL ARTICLES.

### FIVE YEARS' EXPERIENCE WITH THE COLD-BATH TREATMENT OF TYPHOID FEVER.[1]

BY WILLIAM OSLER, M.D.,
OF BALTIMORE, MD.;
PROFESSOR OF MEDICINE IN JOHNS HOPKINS UNIVERSITY.

DURING the first year of the hospital-service typhoid fever was treated symptomatically. The number of severe cases admitted was unusually large, and there were eight deaths among thirty-three patients—a percentage of 24.2. For the past five years ending May 15, 1895, systematic hydrotherapy has been used—the method of Brand, with certain minor modifications. In the first report (vol. iv) the plan was given, but I may repeat here that each patient receives a tub-bath of twenty minutes at 70° F. every third hour, when the rectal temperature is at or above 102.5° F. Frictions are applied in the bath, and a warm drink or a stimulant is given afterward. In a large proportion of the cases no other treatment is employed. If the pulse is feeble, whisky is given, and strychnin. The diet is either wholly milk or in part broths and egg-albumin. It may be noted that all the cases come under my immediate care or, in my absence, that of Dr. Thayer, the Associate in Medicine.

In estimating the value of any plan of treatment it is important that all circumstances should be taken into account. In the previous report I dealt with the statistics as so many patients admitted, of whom so many died; and this, I think, should be done in all institutions—give the total number of cases of each disease treated to a conclusion, and the number of deaths, irrespective altogether of the length of stay in the hospital or the condition on admission. General hospitals are everywhere liable to be repositories of the more severe or troublesome cases, and in typhoid fever more particularly of protracted cases, in which serious symptoms have developed late in the disease. A high rate of mortality in any given acute disease may be an indication of a special usefulness of the institution. As already given, the general statistics of the hospital in typhoid fever are:

| | |
|---|---|
| Cases admitted during the six years ending May 15, 1895 | 389 |
| Number of deaths | 34 |
| Percentage of mortality | 8.7 |
| Cases admitted before the introduction of hydrotherapy | 33 |
| Number of deaths | 8 |
| Percentage of mortality | 24.2 |
| Cases admitted since the introduction of hydrotherapy | 356 |
| Number of deaths | 26 |
| Percentage of mortality | 7.3 |
| Number of cases bathed | 299 |
| Number of deaths among the bathed cases | 20 |
| Percentage of mortality in the bathed cases | 6.6 |

The percentage 7.3 represents the total mortality during the past five years; but as it does not represent the mortality of the cases treated by hydrotherapy, the figures must undergo a further analysis. Many circumstances interfere with the systematic carrying out of the plan, among which the following are the most important:

In the first place, a number of cases are admitted in the second week, and even in the third week, with a falling temperature, and the fever constantly below 102.5° F. Cases, too, are admitted early, which have low temperatures and mild symptoms throughout. Brand and others urge that these should also be bathed; but in a large proportion of all such cases this appears superfluous. There are exceptions, however—cases in which the fever is low on admission, and even remains low for a week or ten days, to be followed by active and threatening symptoms. Nos. XXII and XXIX of the fatal cases were of this kind, and in both one could not but regret that the baths had not been used from the outset. In the very mild cases, seen more frequently in private than in hospital service, the baths are unnecessary. Last year we admitted an unusually large number of such mild cases.

In the second place, some patients are admitted late in the disease, and are too ill to bathe. A patient brought in at the end of the third week, with high fever, rapid, feeble pulse, meteorism, and diarrhea, stands, I believe, a much better chance with careful sponging, to reduce the fever, than he does with tubbing every fourth or fifth hour and the disturbance unavoidable in the lifting out of bed. There were five patients admitted in too feeble a condition to bathe, not one of whom died.

Thirdly, there is a group of cases which on admission present serious complications—hemorrhage, signs of perforation, very intense bronchitis, pneumonia, pleurisy or intense meteorism, with severe diarrhea. On account of hemorrhage the baths were postponed on several occasions. There was

[1] From forthcoming "Studies in Typhoid Fever," No. ii, Johns Hopkins Hospital Reports, vol. v.

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no instance in which on admission the pulmonary symptoms seemed to contraindicate the treatment.

Fourthly, there are cases which were not bathed at first because the diagnosis seemed doubtful. Two of the fatal cases, to which reference will be made shortly, were not recognized clinically as typhoid fever. Each autumn we have a certain number of cases of malaria that present features closely resembling typhoid fever—so much so that baths have been given. These are instances of the so-called estivo-autumnal fever in which the organisms may at first be difficult to find. In other instances, with a strong suspicion of malaria for a day or two, the symptoms of typhoid fever have developed subsequently, but the temperature meanwhile has fallen below the bathing-point. In several cases the condition at first resembled tuberculosis.

And, lastly, the baths have been frequently changed to cold sponges, on account of hemorrhage, profound weakness, tenderness, and swelling of the abdomen, signs of perforation, and in a few cases because of the active protestations of the patient. The sponging, when thoroughly done, is almost as formidable a procedure as the cold bath; indeed, we have had patients ask to have the baths resumed.

The following are among the most important reasons which caused transient suspension of the method: Hemorrhage, 13 cases; perforation, in which condition even the sponging is rarely allowable, but in which the extremities may be bathed without disturbing the patient; great weakness and prostration, 11 cases; active mental symptoms, for one day in one case, for two days in another; extreme tenderness of the abdomen, for one day, one case; severe bronchitis, intense laryngitis, after operation on abscess of parotid, severe phlebitis, pleurisy, each one case. In many of the fatal cases the baths were suspended for 24, sometimes 48 hours before death.

There were several instances in which the symptoms of relapse were so slight that the treatment was not rigidly enforced.

Of the 356 cases treated during the five years, 299 were bathed; of these, 20 died, a mortality of 6.6 per cent.

Of the 57 cases that were not bathed for various reasons, usually because of the mildness of the disease, 6 died, a percentage of 10.3. This high ratio of mortality in the unbathed cases is, of course, due entirely to the circumstance that conditions, mentioned later, interfered with the use of the baths in a group of cases of unusual severity. In the 6 fatal cases, the histories of which are given in full in another place, in two, Cases XI and XVIII, the diagnosis was wrong; in the one, in an old man of 70, with consolidation of the lower lobe, the disease was thought to be lobar pneumonia, and in the other the patient had been in the hospital the year before with entero-colitis, and on readmission with severe diarrhea typhoid fever was not suspected.

In Case XXVII the disease was at first thought to be tuberculous cerebro-spinal meningitis; the temperature was low, the nervous symptoms marked, and it was not until parotiditis developed that our suspicions were aroused about typhoid fever.

In Case XXVIII, after twelve days of moderate fever, severe symptoms developed, with tympany and abdominal tenderness and diarrhea. It was thought best to use the cold sponges; death was probably due to perforation.

In Case XXXII the patient was admitted bleeding profusely from the bowels.

In Case XXXIII the fever was low, only touching 104° at entrance, and subsequently not rising to the bathing-point. Death occurred from thrombosis of the middle cerebral arteries.

Two advantages are claimed for hydrotherapy in typhoid fever—a mitigation of the general symptoms of the disease and a reduction in the mortality. Our experience during the past 5 years bears out these claims.

In general hospitals, to which cases rarely are admitted before the end of the first week, the full benefits of the cold bath, as described by Brand, cannot be expected; nevertheless, in any large series, the severer manifestations appear to be less common. As has been urged so often and so ably by many writers, the beneficial action is not so much special and antipyretic as general, tonic, and roborant. The typhoid picture is not so frequently seen, and we may have 20 or more cases under treatment without an instance of dry tongue or of delirium among them. It is a mistake to claim, as do the too-ardent advocates of the plan, that severe nervous symptoms are never seen. I have taken the pains to go carefully over our records on this point. There were in the first 3 years 13 cases, in the past 2 years 9 cases with delirium. Most of these were protracted cases which had from 75 to 120 baths.

A far more important claim is that the use of the cold bath reduces the mortality from the disease. The comparison from death-rates as a measure of the efficacy of any plans of treatment is notoriously uncertain unless *all* the circumstances are taken into account. Our own figures for the past 5 years, for example, illustrate this—6.2 per cent. in the bathed cases, 10 in the unbathed cases—as the latter group is made up entirely of cases too mild to bathe and 6 patients in whom either the disease was not recognized or who were too ill on admission to treat.

Statistics have a value in this connection only when the figures on which they are based are numerous enough to neutralize in some measure

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their notorious mobility. Small groups of cases are useless; 24 per cent. of mortality in our first year in 33 cases, and a series of nearly 50 bathed cases without a death illustrate the liability to error in discussing a few cases. Unfortunately, typhoid fever is a disease in which the cases may be reckoned by hundreds and thousands, and the average mortality in general and special hospitals throughout Europe and America is easily gathered. The rate may be placed between 15 and 20 in each 100 cases. In the Metropolitan Fever Hospitals, London, the death-rate, as given in the report for 1893, was 17 per cent.

The cold-bath treatment, rigidly enforced, appears to save from 6 to 8 in each hundred of typhoid patients admitted to the care of the hospital physician.

While I enforce the method for its results I am not enamored of the practice. I have been criticised rather sharply for saying harsh words about the Brand system. To-day, when I hear a young girl say that she enjoys the baths, I accept the criticism and feel it just; but to-morrow, when I hear a poor fellow (who has been dumped, like Falstaff, "hissing hot" into a cold tub), chattering out malediction upon nurses and doctors, I am inclined to resent it, and to pray for a method which may be, while equally life-saving, to put it mildly, less disagreeable.

## SOME VAGARIES IN RECTAL PRACTICE.[1]

BY JOSEPH M. MATHEWS, M.D.,
OF LOUISVILLE, KY.;
PROFESSOR OF SURGERY AND CLINICAL LECTURER ON DISEASES OF THE RECTUM IN THE KENTUCKY SCHOOL OF MEDICINE; RECTAL SURGEON TO THE KENTUCKY SCHOOL OF MEDICINE HOSPITAL AND THE LOUISVILLE CITY HOSPITAL; PRESIDENT OF THE LOUISVILLE SURGICAL SOCIETY, ETC., ETC.

WE are all cognizant of the fact that even the text-books, or so-called authorities, do sometimes err. This was never so forcibly impressed upon my mind as in reading all the literature I could obtain upon rectal diseases when I wrote my own work on this theme, and in the remarks I shall make to-night I shall take up a few of the diseases that are incident to the rectum, and try to show what, in my opinion, are vagaries in regard to those that I shall mention.

In the first place, I beg to consider the subject of *hemorrhoids*, mentioning first *external* hemorrhoids. As regards the diagnosis of this condition, it is nearly universal with authorities to divide external hemorrhoids into two different kinds—one is a tag of skin that may become inflamed under certain conditions, and the other a thrombus, or rupture of a bloodvessel and the running of blood out into the tissues. The literature of the subject will show that the majority of those who have written upon it believe that external hemorrhoids of the second variety, a bloodclot, may be caused by pressure of the child's head in parturition, for instance, and that it amounts to only a dilatation of the bloodvessel, with a contained clot. My experience certainly has taught me that this is not true; but that there is necessarily *rupture* of a bloodvessel, and the flowing out of blood into the tissues, in which it coagulates. Therefore I have been led to believe that such pressure as a cause as laid down is a mistake, and that this variety of external pile is not often caused by pressure of the child's head, tumors, or what not, but by force; a strain, a blow, a kick, or anything of that nature that would rupture the bloodvessel, often constitutes the cause of the second variety. That the other variety —inflammation of a tag of skin—does occur is very true, as far as the diagnosis is concerned.

As regards treatment, I wish to say that authorities, as far as I have ever read, advise that external hemorrhoids should be lanced; that a bistoury should be run through them and the clots turned out. There never was a greater vagary in my opinion than this. When it is considered that a person suffering from this variety of hemorrhoids is an invalid for two or three weeks from excessive pain, caused by the inflammation, the procedure is not a very small affair. If we follow the universal practice, to which I have never found an exception, of lancing an external hemorrhoid to let the clot out, anyone who has ever practised this method has seen that he causes a condition which will last longer than it would take Nature to reabsorb the clot. In other words, by letting out this clot one necessarily excites an inflammatory condition, and in twenty-four hours the part itself is larger; there is more exudation of plastic material, more inflammation, more irritation than would exist if it were let alone and Nature were allowed to reabsorb the clot. Therefore, in lieu of accepting this doctrine, as far as the treatment of external hemorrhoids is concerned, I remove the *entire* pile by pinching it up with a pair of forceps and extirpating it, leaving simply an open wound, and in from twelve to twenty-four hours the patient is able to resume his business, only a small wound remaining to heal by granulation. I consider any other method, therefore, a vagary.

It has become the common impression, as far as the treatment of hemorrhoids is concerned, especially the external variety, and among very many surgeons, the internal variety also—and I can quote from so good an authority as Manley, of New York, who has written elaborately upon the subject lately—that all operations for hemorrhoids can be done under the effect of cocain. I want to say very positively that this practice should be condemned by every physician and surgeon, not only on scientific but also on practical

[1] Delivered before the Louisville Clinical Society.

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grounds. It can be demonstrated that cocain is more dangerous than any general anesthetic. There have been more deaths reported from injecting the tissues around the rectum with cocain than have been reported from both ether and chloroform combined. Cocain is going forth to the profession in the writings of its advocates as a very simple anesthetic in dealing with hemorrhoids and it is said to be devoid of danger; while it is an incontrovertible fact that death is much more common following operations upon the rectum since cocain has been used. If I accomplish nothing more by this paper, I would warn the profession against the use of cocain, as far as its injection into the tissues around the rectum is concerned, in performing any minor surgical operation upon these parts. It is a dangerous agent; especially is this true with regard to its use in operations for piles; the patient should always have general anesthesia for rectal operations, no matter what the nature of the procedure may be.

*Internal hemorrhoids.* I shall not take time to discuss the pathology of internal hemorrhoids; it is a mooted question as to exactly how this tumor is formed. More especially do I want to speak of the fact that all conditions around the rectum, at least nearly all, are generally called hemorrhoidal, when in truth this is a great vagary, a great mistake.

As regards the *symptoms of hemorrhoids*, I may say that those laid down by authorities, some at least, are vagaries. Internal hemorrhoids, without complications, really have no symptoms. If the pile is a small one that does not bleed, it cannot be noticed by any symptom; if it is a well-formed tumor, an internal hemorrhoid, it has no symptom except protrusion. Whenever there is pain, whenever there is simple itching or any of the other so-called symptoms of hemorrhoids, this is simply a complication.

Another point I wish to make is, that it seems to be the common opinion, as far as I can gather by having a personal talk with most of the medical men in the country who do work in this line, that internal hemorrhoids are easily diagnosticated, not only by prominent symptoms, but by touch, by making an examination of the rectum with the finger. I want to make the point very positive that it is the only condition or disease of the rectum that *cannot* be diagnosticated by touch. Hemorrhoids may be ever so large and yet not be detectable by touch. There is no way of diagnosticating internal hemorrhoids except by visual inspection if they have protruded, or by a specular examination.

Another vagary is that small piles, of the *capillary* variety, amount to but little, when in truth they are the only dangerous variety of hemorrhoids, either external or internal. Many persons have lost their lives through a small internal capillary pile. I have seen and recorded five cases in which the patients lost half a gallon of blood at one sitting. I am satisfied that people have bled to death from these very insignificant little tumors that authorities state amount to almost nothing. I refer to the bleeding pile, one in which an artery has ruptured, constituting the so-called hemorrhage from the rectum, which originates in a capillary pile, the blood being bright red in color, and coming in jets from the rectum, just as it would from an artery in another situation.

Another mistake, I believe, is the *classification* of internal hemorrhoids. Authorities universally classify them as *arterial*, *venous*, and *capillary*. I do not believe there is any internal pile that does not partake of both the arterial and the venous variety—whether one predominates over the other no one is able to say. One is as much venous as it is arterial, and *vice versa*. It is misleading and entirely a mistake to say that an arterial pile is a much more serious condition than a venous pile; they are both very nearly the same.

As *to the treatment of hemorrhoids.* If I were to follow my own inclination in the treatment of internal hemorrhoids, I would be too dogmatic, because I would say, use carbolic acid injection *never*. I would be inclined to say, use the Paquelin cautery *rarely*, when there is so simple an operation, one so devoid of danger, and so easy of execution, as throwing a ligature around the hemorrhoid, transfixing, and removing it. By this method the blood-supply of the part is effectually shut off; there is very little danger of septic infection, and I do not believe as much can be said of any other method. I regard this treatment as superior as far as this affection is concerned.

*Fistula in ano.* I suppose mistakes are made every day in the diagnosis of fistula in ano from one standpoint—that is, the character of the fistula with which we have to deal. Authors are not sufficiently explicit; they do not go into the details with a minuteness commensurate with the gravity of the condition. It is not enough to say that fistula in ano is a sinus, with an *external* and an *internal* opening, constituting a *complete fistula;* if with an external opening, being an *external incomplete fistula;* or if with an internal opening, constituting an *internal incomplete fistula;* when we remember that it is one of the most destructive conditions from which the human body can suffer. When we realize that a man or woman may become a physical wreck from fistula in ano, it seems strange that writers on general surgery, for instance, do not deal more minutely with the subject. Therefore I have seen fit to make a different division than other authors make in this disease. My division has been *progressive fistula* and *non-progressive fistula.* There are many conditions about the rectum in which we can advise a patient against operative in-

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terference. If there is no physical defect, we might in some cases say that the fistula would not injure the patient at all. We have seen men who could go through life with such a condition without apparent harm. But if one applies this rule to all fistulæ he will wreck his patient, and perhaps cause death from sepsis in the course of a few weeks, certainly in a few months, if the fistula is of the *progressive* variety; I mean by this a condition attended with an acute inflammatory action and rapid burrowing of pus. We know that pus will burrow by continuity into the vagina from the rectum; it will burrow to, and even into, the bladder, from the rectum; it may destroy the perineum, especially in the female; it will often extend into the buttocks, undermine the sphincter muscle, etc., and do these very quickly. Under these conditions I say that every surgeon having the welfare of his patient at heart should advise an *immediate* operation for the fistula.

If I had the time, I would like to detail some cases I have witnessed within the last few months, being ably assisted in the operations by Dr. Laws, in which, if the fistulæ had been allowed to remain three months, no surgeon on earth could have cured them. Therefore I say it should be recognized that some fistulæ are very progressive, and some are not progressive at all. There is thrown out by plastic exudation a material that narrows the fistula down to a very small tract, which will scarcely admit a probe; that can be very readily left alone, not operated upon at all. But if the other condition is met with, the point I make is, that there is not only a rapid destruction locally, but also risk of sepsis.

Another thing I think should be done is to contrast the condition of fistula in women with that of fistula in men. Fistula in ano in the female is a very serious condition. I have now under observation a young married woman who had an abscess in the left side of the rectum and extending to the labia, which was allowed to go for two months without being opened, and at last was lanced. I have been three months trying to cure the fistula. I doubt if I shall succeed, because the process has by its destructive course branched through the perineum, involving the vagina and the sphincter muscle, with different channels running in many directions. Any surgical attempt at cure must of course destroy the septum, and also the sphincter muscle. I do not think enough attention is given to the respective difference occurring in the male and the female.

Another vagary is placing the greatest stress upon finding the *internal opening of a fistula*. I have spoken of this before, and have had my views criticised. Every surgical work gives general directions for finding the internal opening of a fistula when there is an external opening. Of what importance this is to the surgeon I have never been able to understand. Why a surgeon should abandon an operation for fistula because he could not find an internal opening I certainly cannot comprehend; yet I have seen very good surgeons refuse to operate upon patients because this opening could not be found. I have had several patients come to me to be operated upon for fistula who had been refused by other surgeons because the latter could not find an internal opening. That a person has a fistula is proved by the fact of the existence of the external opening; it is not necessary to use a probe at all; the condition calls for an operation. The fact of there being an external opening is enough to decide in favor of an operation; the fistula should be freely slit up, following the channel to the bottom, and, of course, the internal opening will then be found. That a surgeon should refuse to operate simply because an internal opening cannot be found before the operation is to me a vagary.

*Ulceration of the rectum.* Before I speak of what I would consider a vagary in this connection, I wish to relate one case out of many:

A lady was sent to me from a Southern city three months ago, with a note from two surgeons who had treated her for a year. They agreed that she had carcinoma of the rectum, and wanted me to do the best I could under the circumstances. In an examination of this woman I found, situated on the septum half an inch above the internal sphincter muscle, an ulceration larger than a silver dollar. The ulceration was well defined, having raised edges and an indurated base, and from its surface was discharging pus. The septum was thickened by an inflammatory exudation, not being as thin as normal, and I believe the surgeon who refused to operate was afraid of destroying the septum. The question with me at the time was, What was the cause of this ulceration? I did not believe, with the doctor who wrote me the note, that it was malignant. The patient had been under treatment a year, and was in perfect health as far as physical appearance would indicate, weighing one-hundred-and sixty pounds, presenting rosy cheeks, and being in good flesh. Therefore, I looked about for another cause. I asked the patient if she was married, and she replied that she was a widow; I then inquired as to the cause of her husband's death, and she said that he was not dead, but that they had separated. I then asked her if she would tell me of her past life. She said she separated from her husband because he had a bad "trouble." When questioned as to what she meant, she said he had sores on his body, and gave a very good description of syphilis. Therefore, I was led to believe that syphilis was the cause of this ulcerated condition of the rectum, but it did not have the appearance of a syphilitic ulceration; nor did it have the characteristic feel of a syphilitic ulcer. The woman did not look like a syphilitic subject; so I was constrained to believe that the trouble was not syphilis; nor did I believe it was carcinomatous.

In this connection I want to say that I differ with some authorities on the subject. Ulcerations of the

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rectum from benign causes are usually simply erosions and are very small affairs. In an experience of eighteen years, my record-book will not show a dozen cases of benign ulceration of the rectum. In the case just reported I do not believe that the process was benign.

Upon further questioning, the woman told me that she had suffered from slight hemorrhages from the lungs two years before, but not recently. From the appearance of the ulceration of the rectum, from its feel to the touch, and from that portion of the patient's history just given, I concluded that the trouble was tuberculous.

In dealing with ulceration of the rectum, I believe there is only one mode of treatment for tuberculous ulceration, and that is through curettement. Notwithstanding that this lady had been treated for a year by two most excellent physicians and had all the local remedies applied that could be suggested, the ulcer would not heal.

The patient was placed under the influence of chloroform, and I thoroughly curetted the ulcerated portion of the rectum, going down to what I believed to be healthy tissue. She remained here three weeks, then returned to her home, with the ulcer entirely healed, with the exception of one edge, which showed some induration. I also informed her physician and her family that I did not think she could live many years, at least unless she removed to another climate.

My experience has been that when ulceration exists in the rectum in any degree, it is due to a special diathesis, malignant, syphilitic, or tuberculous. Benign ulceration occurs very seldom.

As regards *carcinoma of the rectum*. I do not desire to speak of its diagnosis, but rather of its treatment. Perhaps my views are sufficiently well known in regard to colotomy for carcinoma of the rectum not to require any further mention, and all I shall say is that I am nearly convinced that any operative procedure upon the rectum for carcinoma is unwarrantable in the larger percentage of cases. Kraske has done the profession good service by telling us of his method of extirpating the rectum. It may be said of his operation that by it more of the rectum may be removed than by any other method; but I think the surgeon should consider a little more than that, and that is, whether he is justified in performing any severe operation upon a patient when he recognizes that very little if any good will be thereby accomplished. I do not believe, therefore, that when carcinoma exists in the rectum, involving as much of the rectum as would warrant Kraske's operation, one case in ten would justify the operation.

I read once from the pen of a distinguished gynecologist an article in which he said he doubted very much whether hysterectomy should ever be performed for carcinoma of the uterus. I am very much inclined to adopt the views of this gentleman as far as carcinoma of the rectum is concerned.

I saw this afternoon a lady, thirty years of age, who has carcinoma of the rectum. She has not lost five pounds in flesh, and weighs one-hundred-and-forty-five pounds. She has rosy cheeks, and is healthy and robust in appearance. I cannot get my own consent to excise this rectum by Kraske's or any other method. The carcinoma extends as far as my finger can reach. The rectum is almost completely blocked with the carcinomatous mass, although she does not present the characteristic carcinomatous cachexia. Kraske's is a difficult operation, and the man who undertakes to extirpate the rectum by this method, with the idea that it is an easy procedure, will find himself very much mistaken. Of all operations that I have ever undertaken, complete extirpation of the rectum is one of the bloodiest and most difficult that I have ever witnessed or tried to perform. Are we warranted in doing so fearful an operation when we can promise so little? Mayhap there is some little relief, perhaps none.

I shall not take time to speak of the vagaries of *orificial surgery*, except to denounce it. There is not a day that passes but I find some new evidence against this fearful criminal practice. Men in every city of the Union are given to cutting out the rectums of men, young girls, boys, and infants for the relief of diseases outside the rectum. They are running wild with the idea of reflexes from the rectum, and healthy rectums are extirpated for so-called heart-disease, dyspepsia, neurasthenia, etc. I think the profession at large should be outspoken in this regard; not that we have anything personally against the operators, but to save human life and human wretchedness. If medical men were aware of the number of people in the city of Louisville who have submitted to this outrageous practice—it is more than a vagary—they would agree with me that it should be denounced by every medical journal and every medical man in the United States.

Another vagary, I take it to be, is the frequency with which *prolapse of the rectum* is supposed to exist. In my experience, extending over eighteen years, I have had but six cases of prolapse of the rectum. I have had several hundred cases of prolapse—so diagnosticated. It is true that a great many physicians call large protruding hemorrhoids prolapse of the gut. This is a mistake. When I say that I have seen only six cases, I mean in the adult. Young children often have prolapse of the gut which will take care of itself under simple treatment. The number of cases of prolapse in the adult is very insignificant, and it is a mistake to have it stated in books and periodicals that the condition is often met with.

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From the literature of the subject one would be forced to believe that the simple affection of *pruritus ani* was the symptom of some other trouble. Some very eminent authorities say that it is. I must differ positively from that position. I do not believe that pruritus ani is a symptom of anything except *pruritus*. It is a distinct affection, not dependent upon nor a symptom of any other trouble. I saw to-day a case in which there was excessive pruritus extending not only around the anus, but also upon the scrotum. The patient has as perfect a rectum as I ever examined, and there was no discharge from it. Pruritus that comes from a discharge from the rectum—that is, the itching—is not pruritus *per se*. Therefore, I believe that pruritus is a distinct disease.

*Fissure of the rectum.* I only want to speak of a vagary in this connection so far as the treatment is concerned. In my work on *Diseases of the Rectum*, in commenting upon the different methods advocated by various authorities, I referred especially to the writings of Dr. Adler, of Philadelphia, and stated that I was sorry to see so learned an authority contending for local treatment of fissure of the rectum that occupied weeks and months to effect a cure, when relief could be afforded so quickly and so effectually by slight divulsion of the sphincter muscle. In the last few months a number of articles have been written on the subject of treatment of fissure of the rectum by local measures. Dr. Adler saw fit to reply to my criticism, saying that he believed that I was mistaken, that I was not borne out in my statement by facts as regards dilatation, when he had demonstrated that the condition could be cured by local applications.

A number of months ago a gentleman stepped into my office with a bad fissure of the rectum, and said that he wanted me to treat him for it. I made an examination and told him that he had a fissure, and he then asked how long it would take to effect a cure. I told him that it would take but a few minutes, and he would be detained in the house only a day or two. He was inclined to doubt my statement, and said that he had been treated by a physician every other day for three or four months without much improvement. Therefore, I contend that there should be but one method of treatment, and that dilatation. A word as to the method of dilating. Nearly everyone who has written on this subject has explained that they mean forcible dilatation; breaking the sphincter muscle if necessary. This certainly is a vagary. The more I treat fissure, the more I am satisfied it can be cured by slight dilatation, often by means of a small speculum, dilating until slight pain is evinced, and in the majority of instances the fissure disappears. Then, I say, what is the use of taking three weeks, three months, or a year to cure a condition that can be relieved permanently in a few minutes?

Fissures of the anus are often found in children, and can be cured by the mother, as I have tried to demonstrate in several articles on the subject. An elaborate article was written not long ago by an eminent surgeon, in which he questioned whether fissure ever existed in the child; even so good an authority as Kelsey has said that he had never seen an anal fissure in the child. I saw numbers of them while I was a practitioner in general medicine; and will say that they can be cured by the mother simply anointing her finger and slipping it into the child's anus, practising a little massage for five minutes at a time, and repeating this if necessary. If this plan is followed, a complete cure will almost invariably result.



## WHAT IS THE CAUSE OF THE SHADOW IN SKIASCOPY?

### *A Criticism of the Current Theory.*

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ALTHOUGH much has been written of late about skiascopy, and although the test has become widely known and accepted, nevertheless, from the statements concerning it that I have heard, there can be no doubt that the optic principles involved are not always completely understood, not even by the recognized authorities on the subject. Especially do the ideas upon the cause of the shadow and its movements seem to be very erroneous. So far as my reading goes, only one author, Dr. Rüppell, gives a mathematically correct, but incomplete, explanation of this phenomenon.[1] All other writers attribute it to a real dark area or shadow, and its movement on the retina of the patient. The crescentic shape of the shadow is also explained wrongly, and is referred to the round light-area on the patient's retina. Thus Nettleship[2] says: "In both cases, high M. and high H., the border of the shadow is crescentic, because the diffused image forms a nearly round area on the retina." Swanzy[3] states: "When we speak of the motion of the shadow we mean that the margin of the illuminated area, or the boundary-line between illuminated and non-illuminated area[of the retina], moves along with the illuminated area in response to the motion of the mirror." Noyes[4] distinctly asserts that "we may see in the pupil a portion both of the luminous and the non-luminous surface" [of the retina]. Hartridge[5] says: "It may, therefore, be stated that the illumination and the shadows which we see are an enlarged

[1] Graefe's Archiv, 1892, 1.
[2] Diseases of the Eye, p. 88.
[3] Diseases of the Eye, p. 69.
[4] Diseases of the Eye, p. 74.
[5] Refraction of the Eye, p. 84.

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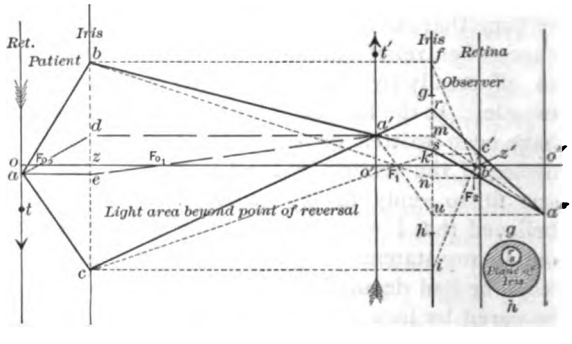
image of the lamp, with the surrounding shadow brought more or less to a focus on the retina, according to the refraction of the eye." Jackson, in his recent monograph, also clings to this idea of the shadow having its cause in a corresponding shadow of the patient's retina—for example, when he says: "But when the point of reversal is approached, so that the magnification of the retina prevents all of the retinal light-area from being seen at one time, only a portion of its outline is visible as an arc of the greatly enlarged circle." At another place he says: "Since in skiascopy one has to observe the movement of an area of light across the shaded retina, the size, brightness, and sharpness of the contrast between the margin of this light-area and the shadow immediately adjoining it are very important factors in determining the definiteness and accuracy of the test." Finally, we even find Parent[1] holding the same opinion, as shown by the following passage: "Mais à quoi est due cette ombre quit apparait dans le champ pupillaire quand nous faisons pivoter le miroir de gauche à droite ou réciproquement? C'est tout simplement une partie de la rétine qui faisant partie de notre champ d'examen (lequel correspond à l'image de notre pupille sur la rétine de l'observé, Helmholtz) était éclairée d'abord, mais ne l'est plus, quand, par un mouvement du miroir, nous déplacons l'image nette ou diffuse de la lampe sur la rétine de l'observé. Ainsi, cette ombre n'est autre chose que la partie non éclairée ou obscure de la rétine, incrite dans notre champ d'examen."

I shall endeavor forthwith to indicate briefly that these ideas are erroneous, and that the iris and accommodation of the observer have a great deal to do with the phenomenon under consideration. First of all, it must be understood that the observer must accommodate his eyes for the pupil of the patient if he wishes to obtain accurate results, as otherwise not only the shadow but also the whole light-area of the pupil moves more or less according to the ametropia of the observer. This can be easily proved geometrically by anyone who has mastered the principles of the following geometric construction, and the importance of this is also well understood by Chibret[2] when he states: "L'observateur, s'il est amétrope, doit corriger sa réfraction afin de voir avec netteté le bord de la pupille pendant l'examen." But, strange to say, no allusion is made to this very important condition of accuracy in the recent monograph by Jackson, though he is otherwise very careful in calling attention to all the nice points of the test.

In the following description and diagrams the human eye is represented by the retina, the two principal foci, and the iris, the last being taken as the principal plane. This conception is sufficiently accurate, as the iris lies only 1.5 mm. behind the second principal plane of the schematic eye. We shall assume, for the sake of simplicity, that the plane mirror is employed and that the patient is naturally or artificially myopic. The mirror is supposed to be rotated downward, so that the light-area in the patient's eye wanders down on his retina. This light-area is at the present assumed to be reduced to a mathematic point, the point *a* in Fig. 1. The point *a* has its image in the air at *a'*, and this point is found by means of the principal plane and the two principal foci by drawing first the ray *aa* through $Fo_2$ and then *da'* parallel to the axis *oz*, and by further drawing *ae* parallel to the axis and then *e* $Fo_1$. The point of intersection is *a'*, the image of *a*. Line a'o', perpendicular to the axis, contains all the images of the patient's retina, so that if *t* were the illuminated point of the retina, *t'* would be its image. Fig. 1 shows the observer's eye beyond this point *a'*.

FIG. 1.




Let us now inquire how the bundle of rays, *abc*, which comes to a focus at *a'*, is affected by the eye of the observer, if this person is supposed to have his eyes accommodated for the pupil, *bc*, of the patient so that an exact image of this pupil is formed on his retina. We can construct this image of the patient's pupil by drawing *ci* parallel to the axis and then *i* $F_2$; the latter ray cuts the observer's retina at *c'*, the image of *c*. In the same way we find point *b'*, and thus obtain a clear inverted image *c'b'* of the pupil *bc*. It is evident that ray *ba's* must after refraction pass to point *b'*, because *b'* is the image of *b*, toward which, therefore, all the rays emanating from *b* must converge. It is further clear that ray *ca'r* must finally pass to *c'*, as *c'* is the image of *c*. Now, as all the rays from *a* emerging from the patient's eye are contained between these two marginal rays, it is evident that they must all meet the retina of the observer between the two points *c'b'*; so that in reality the observer obtains a circular image *c'b'* on his retina wholly filled with light. This circle of light is but the diffusion-

[1] Festschrift für Herm. von Helmholtz, 1891.
[2] Archives d'Ophthalmologie, 1890.

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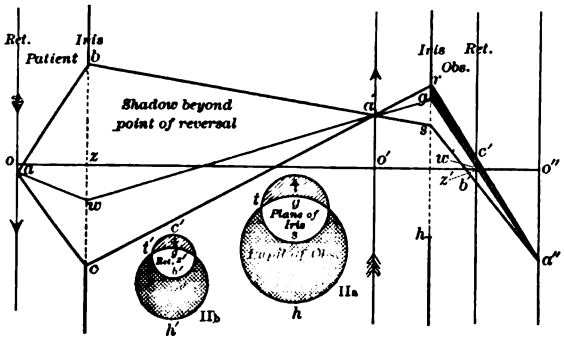
image of point $a'$ produced by the observer's eye, the real image of which, point $a''$, we find by our old construction to lie at a'' beyond the retina and below the axis. If, now, our mirror is rotated downward, point $a$ will go down, too; point $a'$, however, will go up in line $a'a'$, and $a''$ will go down on line $a''a''$. Nevertheless, the ray $ra''$ will always go through $c'$, because it comes from $c$, and the eye of the observer is supposed to be so adjusted that all rays from $c$ will meet at $c'$; and, furthermore, the ray $sa''$ will always pass through $b'$ for the same reason. Therefore, no matter where the point $a$ lies, whether on the axis or above or below it, as long as *all* the rays $bca'$ can enter the hole in the mirror and the pupil, $gh$, of the observer, so long will they always form a stationary diffusion-circle, $c'b'$. There can be no shadow and no movement of light. But the moment the point $a$ goes down so far that ray $ca'$ falls beyond $g$, the margin of the pupil, the phenomenon is changed at once.[1] This is explained by Fig. 2. Here the mirror is sup-

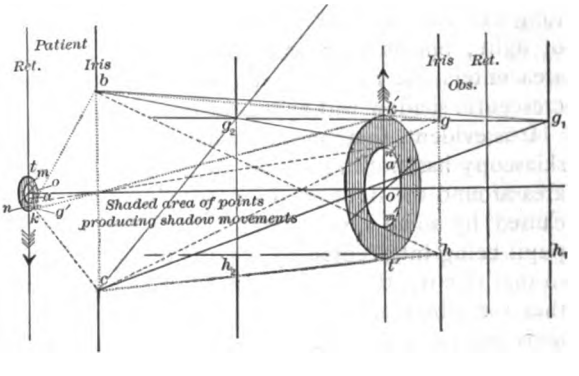
FIG. 2.




posed to have been rotated so far down that from the bundle of rays $bca'$ not all can enter the eye of the observer. That part of the bundle between $a'r$ and $a'g$ or the bundle $wca'$ is cut off by his iris. If the piece $gr$ of the iris were absent, ray $a'r$ would pass to $c'$ as it comes from $c$, but now all the rays up to $a'g$ are prevented from entering the eye. Ray $a'g$ will pass through $w'$ if $w'$ is the image of $w$. Therefore, the former circular diffusion-image of point a' has now changed its shape. We can find this shape by remembering that at the pupil of the observer we have (IIa) the pupil, $gh$, partially filled with light. This light-area has the form of a circle, the upper part of which is cut off by the iris, together with its circular pupillary border $tg$. If we want to know what form this light-area has on the retina, we simply have to draw lines from $tgs$ to the point $a''$, the image of $a'$, because all rays filling the area $tgs$ come to a focus at $a''$. The figure that these rays form on the retina (which is parallel to the iris) must necessarily have the same shape as the light-area in the pupil, although a little smaller, as is represented in IIb, where $t'g'b'$ is the light-area. Therefore, if point $a$ goes down so far that ray $ca'r$ just passes beyond $g$, the circular light-area on the retina of the observer will begin to show a slight dark crescent in its upper part. But, of course, if a crescentic shadow appears in the upper part of the retinal image of the patient's pupil, the observer projects it out as belonging to the lower part of the observed pupil, and so it happens that he sees a shadow, crescentic in shape, and moving upward in the stationary light-area in proportion as the shadow moves downward on the retina from $c'$ to $b'$. In short, we may say that the shadow moves *against* the mirror. As soon as point $a$ goes down so far that even ray $ba's$ reaches $g$, all the light disappears from the eye of the observer, though the same amount of light as before may fall on the patient's pupil if the mirror be large enough.

Attention must be called to the fact that the light-area is quite stationary on the observer's retina as long as he sees the pupil distinctly, and that, therefore, the physician can see no movement until the light-point, $a$, on the patient's retina (Fig.

FIG. 3.




3) has gone to $n$; that is, so far down that ray $ca'$, in our diagram ray $cn'$, reaches $g$, the margin of the observer's pupil. This movement of the shadow lasts until $a$ has gone as far down as $k$; that is, so far down that even ray $bk'$ touches $g$, when all the light disappears. We have, therefore, around the point of fixation, $o$, of the patient an area of points that give only a stationary light-circle, as indicated in Fig. 3, by the inner circle $mn$, and outside of

[1] Here it must be mentioned that in the diagrams the mirror has been omitted for clearness' sake. For the same reason the rays are supposed to be intercepted only by the iris of the observer, which indeed corresponds with the actual condition of affairs, if the hole of the mirror is larger than the observer's pupil. Should, however, the pupil be larger than the hole of the mirror the rays from $bc$ would be intercepted by the circular opening in the mirror first. But in reality the mirror is so near to the iris of the observer that practically this mirror may be supposed to be in the plane of the iris. We have, then, only to substitute for the observer's pupil the smaller sight-hole of the mirror. Everything else remains unchanged.

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this another ring-shaped area that produces movements of shadow, the shaded area *tm kn;* but as we judge the refraction by the movement of the shadow, and as the point of fixation *o*, lying on the optic axis, does not give rise to such shadows, we see that in reality we do not measure the refraction of the point of fixation (if the patient looks at us), but only that of a point or series of points a little distance away from it. This distance, however, for a myopia of 1 D. does not amount to more than seven seconds angular deviation, so that for our purposes this little inaccuracy may be neglected. We further see by reference to Fig. 3 that the area, *n'm'*, of the light-producing points is the smaller and the area of the shadow-producing points the greater, and therefore the accuracy of the test is the greater the smaller *gh* the pupil of the observer, and the greater the pupil, *bc*, of the patient, the other conditions remaining the same.

If we now look more closely at Fig. 3, we shall find that the circle *tk* is but the diffusion-image of the pupil *gh* of the observer on the patient's retina, and we shall see further that the shadow-producing ring of light-points *tkmn* consists of but the diffusion-circles of all the points of the margin of the observer's pupil if this were luminous. For the ray *gc* from *g* goes to *n*, and the ray *bg* from *g* goes to *k*, while both rays intersect at *g'* in front of the patient's retina. Line *nk* represents, therefore, the diameter of the diffusion-circle of point *g'*, the image of point *g*. This knowledge allows us at once to foresee what happens if the light on the patient's retina is not reduced to a mathematic point, but has a definite extent. For it will be seen that as long as this extended light-area lies wholly within the area of the light-producing points *mn*, so long will the observer see only a stationary circle of light; but as soon as a small part of the light-area enters the ring of shadow-producing points a crescentic shadow will appear at once.

It is evident, therefore, that the shadow we see in skiascopy has nothing at all to do with the dark area around the light on the patient's retina, but is caused by some rays emerging from the patient's pupil being intercepted by the iris of the observer, so that this iris throws its shadow on the light-area that the observer's retina receives from the luminous pupil of the patient. How this same reasoning also applies to the case in which the observer is at a', the point of reversal, when no shadow can appear gradually, but in which the stationary light-area of the pupil is darkened all at once by point a' of Fig. 2 coming to *g;* and how, further, the same construction applies to the observer within the point of reversal and also to a case of astigmatism, to spherical aberration, and to emmetropia and hypermetropia, all this can be well shown by similar diagrams; but to reproduce them all here would be too costly, and would require too much space. Besides, to give a complete description of all the phenomena is not the object of this communication. It will have fulfilled its purpose if it has attracted attention to some important points usually overlooked or even entirely misunderstood not only by the practising skiascopist, but also by authoritative writers. These points are the following:

1. The observer must keep his eyes accommodated for the pupil of the patient.

2. The light-area has then exactly the shape of the patient's pupil, round or otherwise, as the case may be, and remains perfectly stationary throughout the test. The shadow alone moves.

3. The shadow is produced by the iris of the observer.

4. The usual crescentic shape of the shadow has its cause in the usual circular form of the pupil of both patient and observer.

5. Skiascopy is the more accurate the larger the pupil of the patient (provided there is not much aberration in the peripheral zone) and the smaller the pupil of the observer.

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## CLINICAL MEMORANDA.

### A CASE OF ILEOCOLOSTOMY BY THE MURPHY METHOD; EXCISION OF THE CECUM; TOTAL EXCLUSION OF A PORTION OF THE ILEUM (ENTERO-APOKLEISIS).

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AT the beginning of my last term of service in the Arapahoe County Hospital I found in the wards a patient, E. B., twenty years old, who had been admitted August 4, 1894, to the service of one of my colleagues. He was suffering at that time with an appendicitis, with a perityphlitic abscess. He was operated upon for the removal of the appendix and the evacuation of the pus. Within a few days the walls of the cecum gave way in several places, and a fecal fistula was formed. My colleague operated upon him subsequently, with a view to closing the cecal openings by sutures, but was unsuccessful.

When the man came under my care, on September 1, 1894, he was greatly emaciated, and suffered much pain. There were four large fistulæ in the outer wall of the cecum, through which all the fecal matter was discharged. The opening in the abdominal wall had a length of about five inches and a width of two-and-half, and was suppurating profusely. I was convinced that any further attempt to close the fistulæ by sutures would fail, so I decided to effect an anastomosis between the ileum and the colon, in order to shut off the cecum from the fecal circulation.

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I operated on September 14, 1894. My incision began about an inch below the cartilage of the ninth rib, extending downward and slightly inward for six inches, in a line midway between the margin of the fistulous opening and the linea alba. When the section of the abdominal wall had been made, exploration disclosed the fact that the suppurating focus about the head of the cecum had been very perfectly circumscribed by loops of intestine matted together by adhesions.

With comparatively little difficulty I discovered, as I thought, the terminal portion of the ileum. This I cut across at a point about three fourths of an inch from what I believed to be the valve. Leaving a clamp on the short portion of the gut, I caried the other end upward, and by means of the largest size Murphy button made an end-to-side anastomosis with the beginning of the hepatic flexure of the colon. I then closed the end of the ileum left attached to the cecum below. I used first a continuous suture and then invaginated the line of union by a row of Lembert sutures. After a careful toilet of the peritoneum the abdominal wound was closed, the cecum was plugged with gauze, and the usual dressing applied.

In the patient's weak condition it was out of the question to think of excising the cecum at that time. In fact I was very doubtful when the patient was put on the table if he would survive an intestinal anastomosis. He rallied from the operation, however, very satisfactorily, showing almost no evidence of shock. His progress toward recovery was uninterrupted and exceedingly rapid. As it was impossible to weigh him before the operation I have no means of judging with accuracy as to his gain in weight, but my impression is that it was not less than a pound each day for a month.

On the eleventh day after the operation the sutures were removed from the abdominal wound, and this was found to be perfectly united. The cecum was kept plugged with gauze, notwithstanding which there was some discharge of fecal matter, although the main portion of the feces was passed naturally. The button was passed from the rectum on the thirteenth day. I was determined to see if nature would close the defect in the cecum and in the abdominal wall, and so had the patient discharged from the hospital on October 31st. At the end of a month he was readmitted, begging for a second operation. The fistula had contracted to about two-thirds of its original size, and there was still some regurgitation of fecal matter. The man's general health was excellent. On December 8th I operated a second time. Before beginning the second operation I passed my finger into the colon and examined the site of the anastomosis. I had used the largest size Murphy button in the set. I found that the opening was barely large enough to admit the end of my index-finger as far as the base of the nail. On measuring my finger at that point I find that it has a circumference of exactly two inches, while the button used had a circumference of three-and-a-quarter inches.

Entering at the fistulous opening I dissected the large bowel loose from its attachments, and cut it across somewhat above the junction of the cecum with the ascending colon. I then closed the colon by a continuous suture, reinforced by a series of Lembert sutures. Then taking up the cecum, I dissected it downward to the ileocecal valve. On passing my finger through the valve I discovered that in my first operation I had not cut the ileum at its junction with the cecum as I had believed. It was impossible to reach the end of the segment. It at once became evident to me that nature in her attempt to circumscribe the original infected area about the head of the cecum had matted together the small intestines in such a way that what I believed to be the external portion of the ileum was only the point where it had entered into the formation of this wall. How much of it was involved I had no means of determining. On observing this condition I excised the cecum at the valve. I then proceeded to close the ileum by the same method that I had used for its other end, thus excluding that portion of the gut that lay between the point where I had cut it in the original operation and the ileo-cecal valve. I did not attempt to bring together the edges of the abdominal wound, but packed it with gauze and left nature to fill it up. The patient made an excellent recovery, and at the present time (January 20, 1895) is perfectly well.

This case presents several points of interest. It adds another to the list of end-to-side anastomoses by the Murphy method. I cannot speak too highly of the mechanical ingenuity of this button, and the facility with which an anastomosis can be made with it. In fact, I believe that it is the only possible method that I could have used in this case, owing to the patient's extremely weak and depressed condition at the time of the first operation. Any prolonged procedure would unquestionably have terminated his life on the table. By this method, however, the anastomosis was effected in a very few minutes, and the operation speedily finished.

So far as I know, this is the first opportunity in which the amount of contraction at the point of anastomosis has ever been observed in the living subject. Forty-two days had intervened between the time that the button was passed and the time of the second operation, and as the opening was found to have a circumference of but two inches instead of three-and-a-quarter, which it necessarily must have had at the time that the button was passed, this brings up a very interesting question as to whether this contraction will continue and where it will end.

The case also furnishes an addition to the 104 cases of excision of the cecum tabulated by Magill.[1] The article of Dr. Magill is a most exhaustive and admirable one, but I am at a loss to understand why he should apply the term "resection" to an "excision of the cecum." It is certainly a misnomer to speak of a primary removal of the cecum as "resection."

The second operation, I believe, furnishes the first example of a total exclusion of the portion of the intestine which has been performed in America.

In the *Centralblatt für Chirurgie*, 1894, No. 49, Obalinski discusses the case of total exclusion operated on by von Baracz, and reports two cases of his own. One of his patients suffered from a fecal fistula. The operation disclosed the fact that it communicated with a tuberculous appendix and cecum. Both of these structures were excised. The surgeon was not able to approximate the ileum to the ascending colon on account of the shortness of its mesentery; so he cut the colon at the junction of the hepatic flexure with the transverse

[1] William S. Magill: "Resection of the Ileocecal Coil of the Intestine, its Indications, Results, and Modus Operandi, with a Review of 102 Cases and Two Yet Unpublished." Annals of Surgery, December, 1894.

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portion and made an end-to-end anastomosis between the transverse colon and the ileum. He then sutured both ends of the ascending colon, totally excluding it. In the other case he first effected a partial exclusion by fastening both ends of the excluded gut in the abdominal wound. This gave rise to so much inconvenience from the discharge of mucus from the fistula that he operated a second time, making a total exclusion. Both of the patients made good recoveries. Obalinski contends that to Polish surgeons is due the credit for the first two cases of total exclusion of a portion of the intestinal tract, and points out the fact that this operation has been confused with that of partial exclusion and simple excision. He cites Dr. Carmalt, of New Haven, as claiming in his article published in the *International Clinics* for October, 1891, to have made a total exclusion. Dr. Carmalt's case was simply an excision of the cecum, with an end-to-end anastomosis between the ileum and the ascending colon. He made no claim to having done an exclusion.

Obalinski further objects to the term exclusion as applied to this operation, and proposes in its stead "elimination." There can be no doubt that some confusion has arisen regarding the exact character of this operation through the indefinite term "exclusion," but to my mind "elimination" is no more definite. There is need of a term that will signify a shutting up of both ends of a portion of the intestine, thereby cutting it off from the fecal circulation and yet leaving it in place. I would propose for this operation the name "entero-apokleisis." This word in the Greek defines exactly the operation that is done, and if used the operation could be mistaken for nothing else.

The invariably good results that have followed this operation of entero-apokleisis show that it has a distinct and important position in modern abdominal surgery. It makes it possible to operate successfully on cases that without it would either be left with an artificial anus and its attendant horrors, or to die of the original disease. While on first thought it seems rather a rash procedure, its results show that it is not only justifiable but also to be commended.

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## PERFORATION OF THE RECTUM AND PERITONEUM BY IMPALEMENT UPON A PITCHFORK-HANDLE.

BY WELLER VAN HOOK, A.B., M.D.,
OF CHICAGO.

A SHORT time ago a case of rupture of the rectal wall and perforation of the pelvic peritoneum by impalement came under my observation. It seemed at first to be a case of great rarity, but medical literature I find contains several instances of such penetrating injuries, and conversation with medical and lay acquaintances leads me to believe that only a small proportion of such cases are reported. The case to which I refer was as follows:

CASE I.—Leo M., aged thirteen years, in the enjoyment of perfect health, slid down from the top of a load of hay. Having had a common four-tined pitchfork in his hand, he had allowed it to slip to the ground, tines downward. The fork, instead of falling over, stood upright, leaning against the hay, with the tines sticking in the ground, and as the boy slid downward the handle of the fork perforated the clothing and entered the rectum. The boy fell over on the ground, and the handle became disengaged from the bowel. The boy made his way to the farmhouse near by and lay down upon a bed. The pain at this time was astonishingly slight, and the boy, whose parents were absent, did not send for a physician until the next day. Dr. Frederick Doepp, of Homewood, Ill., then saw the patient, and at once telephoned for me, but on account of the distance I did not see the patient until several hours afterward, when twenty hours had elapsed since the injury.

The instrument of penetration was first examined, and found to be a common cylindrical wooden fork-handle, three-and-three-quarters inches in circumference, upon which blood and fecal matter were smeared for a distance of seven-and-three-quarters inches from its rounded extremity.

The patient's pulse was 110 and his temperature 101°; but the character of the pulse-beats was ominous, the vessel being hard and small. There was some tenderness over the hypogastric region. As I believed peritonitis had begun celiotomy was performed. In Trendelenburg's posture the abdomen was opened, and sero-purulent fluid with a fecal odor at once escaped. This was wiped out carefully, and the rent in the bowel sought for. The peritoneum was lacerated between the rectum and the bladder, in a transverse direction, to such an extent that the tips of four fingers could easily be introduced. The wound in the rectum was located in a line between the anus and the peritoneal laceration; *i. e.*, at a point about two inches above the anus. The wound in the peritoneum was closed with several interrupted sutures, and the inflamed intestines were gently cleansed by pressure with sterilized gauze, a great number of flakes of plastic lymph being removed. A large strip of iodoform-gauze was carried up by an assistant through the rectal wound into the space between the bladder and the rectum beneath the sutured peritoneum. Another strip of gauze enclosing a glass drainage-tube was carried down to the rectovesical space from the lower angle of the abdominal wound.

During the next two days the peritonitis spread rapidly. On the third the patient's condition improved somewhat, but on the fourth day the inflammation proved fatal.

Dr. Vinnedge, of Lafayette, Ind., has kindly placed at my disposal the notes of a similar case in which the outcome was favorable. It is probable, however, that the peritoneum was not injured in this case.

CASE II.—While engaged shaking out sheaves of wheat and pushing them into a moving thrashing-machine, near Lafayette, a man, about thirty years of age, strong and well, lost his balance, and fell backward off the feeding-table on which he stood, striking on a pitchfork-handle, which penetrated his rectum for a distance apparently between six and eight inches. The pitchfork-handle had been cut or sawed off so that it was only about one-third the usual length of a three-tined fork-handle, and was standing in a vertical position when the man fell on it, the tines having been thrust into the ground. The blunt handle entered the injured man's person one inch in advance and one inch to the right of the anus, external to the sphincters, and passed into the rectum low down, apparently following its course upward to the extent stated, if not a little further.

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The injured man fell over with the fork in his person, and his associates who pulled it out of his body insisted that it was buried ten inches, and in proof of this they showed the forkhandle, one-and-a-half inches thick, which was bloody that distance from its extremity.

When first seen by Dr. Vinnedge the injured man was lying on a sofa, under a shade-tree in the yard of the farmhouse, apparently suffering only a moderate amount of pain. As to treatment, he was simply placed in the recumbent position, and advised to remain so until further notice. During the night his companions placed him in an improvised ambulance, and removed him to a point seven miles distant. On the following day Dr. Vinnedge, in company with Dr. W. C. C. Brown, of Lafayette, found his pulse and temperature each one-hundred, with but little pain. On the following day his condition was unchanged. From this time forward the man made a good recovery, leaving his bed at the end of a week. He defecated for the first time five days after the reception of the injury. There was never any suppuration or sloughing, and three weeks after his fall, when for the first time he presented himself for inspection, he said that he felt as well as he ever did, and that he was going to return to his work.

A hasty search through the *Index Medicus* and the *Catalogue of the Surgeon-General's Library* shows that cases of impalement upon sticks have been reported by Osberghaus, W. C. Jones, Watson, Chatterjee (bamboo-stick), Forget, and P. G. Hewett (leg of chair). Three cases of rupture with bougies, and one each with a colpeurynter, a coin, a wineglass, a gunbarrel, and a candle are reported. Two cases of laceration by a bull's horn are recorded, while in eighteen cases the nature of the instrument is not stated in the title.

Dr. Joseph B. Bacon reports a case of rupture of the rectum by impalement upon a tool-handle, the small intestine protruding through the wound into the rectum. The attending physician pushed back the prolapsed bowel and introduced a strip of iodoform-gauze to act as a drain. The patient recovered.

The original cases here reported are published in order to place them on record, but especially in order to request members of the profession who have made similar observations to communicate with me. All reports received will be fully credited to those gentlemen sending them. Upon the basis of such a collective investigation an attempt will be made to determine a number of important points in connection with these grave accidents; *e. g.*, the anatomic injuries sustained, the success of the different methods of treatment, and the general mortality.

103 State St.

## MEDICAL PROGRESS.

***Auscultation of Joints.***—Richardson (*Asclepiad*, vol. xi, No. 43, p. 270) recommends auscultation of joints as a diagnostic procedure. He prefers the double stethoscope, though sometimes he uses the simple differential stethoscope, composed of two single-mouthed tubes quite separate, the ear-pieces of which can be adapted one in each ear. The mouthpiece should not be large (¼ in. in diameter is sufficient), and it is advisable to have the mouthpiece covered at its edge with India rubber, so as to avoid friction. If the double stethoscope is not at hand, the ordinary wooden instrument will suffice, but the double instrument enables the operator to manipulate the joint without the aid of an assistant. Auscultation of the healthy joint of a young person yields no sound or movement whatever. If movement be made in such a manner as to bring the end of the movable bone with some force into collision with the joint or bone that opposes it in the socket, no sound will be heard except a very gentle soft percussion-sound. When the sound is produced it may be called a cushioned sound. It ceases the moment the action that produced it is slowly carried out without pressure. A very slight derangement within the joint itself—less than a friction that produces impediment of motion, much less than an impediment that gives rise to pain—leads, however, to sounds that are distinguishable, the abnormal sound increasing in degree as the impediment within the joint is intensified or modified. Five modifications of joint-sounds are described: Simple dry friction-sound, dry grating sound, coarse grating sound, moist crepitant sound, and coarse crepitant sound.

***Hysterectomy for Carcinoma of the Uterus.***—Clarke (*Johns Hopkins Hospital Bulletin*, vol. vi, Nos. 52, 53, p. 120) recommends the following radical method of performing hysterectomy in the treatment of carcinoma of the uterus: He first introduces bougies into the cavity of the uterus under the local influence of cocain, thus saving time and conserving the patient's vital powers. The abdominal incision is made of sufficient length to insure freedom of manual movements. The upper portion of the broad ligament, together with the ovarian artery, is ligated; the vesico-uterine peritoneum divided around to the opposite side; the bladder pushed off and the layers of the ligaments spread apart, exposing the uterine artery. The uterine artery is dissected out for 2½ cm. from the uterus beyond the vaginal branch, and tied. The ureter is dissected free in the base of the broad ligament. The remainder of the broad ligament is ligated close to the iliac vessels, and cut away from its pelvic attachment. The dissection is carried well down below the carcinomatous area, even though the cervix alone seems to be involved. The same steps are followed on the opposite side. The vagina is perforated with sharp-pointed scissors, making strong traction on the uterus with small volsellum-forceps, so as to pull the vagina up and make its walls tense. The affected parts are then ligated in small segments (1 cm.), and each segment is cut as it is tied. Iodoform-gauze is next inserted from above into the raw space left by the hysterectomy; and the vesical and rectal peritoneum is drawn over this with a continuous fine silk suture.

***Dermoid Cyst of the Tongue.***—Dumstrey (*Deutsche medicinische Wochenschrift*, 1895, No. 35, p. 573) has reported the case of a man, twenty-four years of age, who presented himself on account of difficulty of speech and deglutition of three-years' standing, caused by a swelling in and under the tongue, at first increasing in size slowly but latterly more rapidly. Mastication and deglutition could only be performed slowly and with difficulty and effort. Speech was markedly nasal, and for a short time there had been distressing though transient attacks of intense dyspnea, especially in the morning on arising. On examination a tumor was found beneath the tip of the tongue presenting a doughy feeling and

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fluctuation. The mass was almost as large as a fist, and displaced the tongue upward and backward. The formation was believed to be a ranula, and an operation was undertaken for its removal. After the induction of cocain-anesthesia, the mucous membrane covering the tumor was carefully divided in the median line, when it was found that the mass was covered also by a thin layer of muscular tissue, on the removal of which the growth was with some little difficulty extirpated. The tumor was reniform in shape, 7 cm. (2.75 in.) long, 3½ cm. (1.38 in.) wide, and 4.75 cm. (1.87 in.) thick. It weighed 68.6 gm. (2.42 oz.), and on microscopic examination proved to be a dermoid cyst. The further course of the case was uneventful, recovery ultimately ensuing, the patient after the lapse of twelve days being relieved of all difficulty of speech and deglutition.

***Gastric Carcinoma in a Young Man.***—At a recent meeting of the Société médicale des Hôpitaux of Paris, MATHIEU (*Wiener klinische Rundschau*, 1895, No. 35, p. 552) reported a case of fatal carcinoma of the stomach in a man twenty-five years old. The first symptoms of gastric derangement appeared three years before death, and were characterized by features of hyperchlorhydria. The administration of alkalies being unattended with improvement, the gastric juice was examined and anachlorhydria found. The patient subsequently became cachectic; a tumor appeared in the epigastrium, and an exploratory celiotomy disclosed the existence of carcinoma of the stomach and peritoneum. In the discussion Catrin and Ferrans each reported a case of carcinoma in a young person, pursuing a protracted course and terminating fatally.

## THERAPEUTIC NOTES.

***The Treatment of Hemophilia with Calcium Chlorid.***—At a recent meeting of the Medical Society of Victoria, BRYANT (*Australian Medical Journal*, vol. xvii, No. 8, p. 340) reported the case of a boy, four-and-a-half years old, who, at the age of twelve months, had received a slight scratch upon the mucous membrane of the lower lip, as a result of which there was a constant oozing of blood for eleven days. The bleeding was controlled by gentle pressure between fingers and the application of collodion on cotton-wool. At the age of two-and-one-half years the child fell and injured the knee-joint. The neighboring parts became black, and the joint swelled and became tense and was apparently filled with blood-clot. Treatment by rest and evaporating lotions was followed by complete recovery. The parents stated that the slightest touch resulted in a black skin-mark, and the child always presented bruises. The boy was rather anemic in appearance, but had grown stout and appeared quite healthy. At the age of four-and-one-half years a punctured wound in the right supraorbital region, resulting from a fall, was followed by obstinate bleeding that failed to yield to the usual hemostatics. The child became almost pulseless, blanched, and transparent. The hemorrhage was partially controlled for a time by applications of hot water, followed by lint soaked in collodion, together with compression. Slight oozing persisted, and on the fourth day a large clot was found protruding from the wound, the edges of which were sloughing and bleeding. Matters continued thus alarmingly for ten days, when a solution of calcium chlorid was administered at intervals of two hours. Thereafter the hemorrhage gradually ceased, and did not recur. In addition to the administration of a soluble salt of calcium in large doses, the local application of pads soaked in a recent infusion of thymus gland is recommended for the control of obstinate hemorrhage.

***The Treatment of Diphtheria with the Antitoxin.***—In support of the utility of the antitoxin in the treatment of diphtheria, BEHRING (*Deutsche medicinische Wochenschrift*, 1895, No. 38, p. 623) has collected from official sources the following statistics, showing that the proportion of cases of diphtheria admitted to the hospitals of Berlin has not increased since the introduction of the antitoxin:

| | 1891 | 1892 | 1893 | 1894 | 1895 to July 28 |
|---|---|---|---|---|---|
| Number of cases of diphtheria treated in the city of Berlin | 3502 | 3772 | 4296 | 5240 | 3111 |
| Number of cases of diphtheria treated in Berlin hospitals | 1727 | 2120 | 2403 | 2900 | 1666 |
| Per cent. | (49.3) | (56.2) | (55.9) | (55.3) | (53.5) |

The increased number of cases is to be attributed to increase in population.

The following figures show the reduction in the mortality from diphtheria in Berlin, both in and out of hospitals, since the introduction of the antitoxin:

| | 1891 | 1892 | 1893 | 1894 | 1895 7 mos. |
|---|---|---|---|---|---|
| Number of cases of diphtheria treated in the city of Berlin | 3502 | 3772 | 4296 | 5240 | 3111 |
| Number of deaths | 1144 | 1376 | 1577 | 1496 | 495 |
| Per cent. | (32.6) | (36.5) | (36.7) | (28.5) | (15.9) |
| Number of cases of diphtheria treated in Berlin hospitals | 1727 | 2120 | 2403 | 2900 | 1666 |
| Number of deaths | 613 | 867 | 931 | 611 | 250 |
| Per cent. | (35.5) | (40.9) | (38.7) | (21.1) | (15.5) |

Extended investigation shows that the mortality from diphtheria in Berlin in the year 1895 was two-thirds less than in the previous seventeen years, during which careful official statistics have been collected.

The following figures show the results obtained in the surgical clinic of Prof. Bose at Giessen in the treatment of 112 cases of diphtheria with the antitoxin:

| | All cases. | Tracheotomized. | Not tracheotomized. |
|---|---|---|---|
| | Died. | Died. | Died. |
| Jan. 1, 1890, to Jan. 1, 1893 | 93 48 | 84 45 | 9 3 |
| Per cent. | (51.6) | (53.5) | (33.3) |
| Jan. 1, 1893, to Jan. 1, 1894 | 186 82 | 148 78 | 38 4 |
| Per cent. | (44.0) | (52.7) | (10.5) |
| Jan. 1, 1894, to Oct. 26, 1894 | 144 54 | 91 49 | 53 5 |
| Per cent. | (37.5) | (53.8) | (9.4) |
| Oct. 27, 1894, to July 31, 1895 | 112 9 | 52 8 | 61 1 |
| Per cent. | (8.03) | (15.2) | (1.6) |

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## THE EMPLOYMENT OF PRISONERS.

WE do not know of any example of popular legislation that equals in folly and wickedness the amendment to the New York State Constitution, recently offered to the people for ratification, which prohibits the employment of prisoners at productive labor. We learn from a New York contemporary that this brutal amendment was included with a number of others, and that all had to be voted on together. As some of these amendments were intended to secure much-needed reforms, the people were confronted with the disagreeable alternative of accepting the evil with the good, or rejecting the good entirely. We presume, or at least hope, that it was for this reason alone that this particular amendment was adopted.

It is to be noted that this is not a statute-law, which can be altered at any time by the Legislature, but that it is a part of the constitutional law of the State. Therefore, under our cumbersome system of national and State Constitutions, it is somewhat like the ancient laws of the Medes and Persians. There is no getting rid of it easily. Originally the intention of the fathers was that the Constitution should contain only fundamental law; but the opportunities for demagogues and labor-agitators not to keep their hands off were too good to be missed, and so now we witness these politicians securing "labor-" legislation and foisting it into the State Constitution, whence nobody, it is presumed, will ever be able to get it out again. The true nature and tendency of this piece of lawmaking can be illustrated in a few propositions.

First, let us consider the policy of it. It is evidently intended to placate the "labor-" element. It is inspired by "socialism"—which is the most truly unsocial cult that was ever preached, and is, or would be, the worst tyrant that ever held sway. In this instance the monster disregards the rights of all other persons, not only the unhappy prisoners, but all taxpayers, and frames a law in favor of a few special classes. It protects those only whose labor is in competition with that of the convicts, and embodies this grossly discriminating law in the State Constitution, which is designed to be only the repository of fundamental law for all. The whole scheme shows a lack both of intelligence and of conscience; of intelligence to grasp the higher principles of statecraft, and of conscience to regard the rights of all.

Second, let us consider the effects of the amendment. We learn that under it convicts are to be limited to such labor as is necessary for supplying the public institutions of the State with such articles as they need. This sounds well; but it is specious and tricky. All labor for the State of New York must, by this very Constitution, be given out on contract to the lowest bidder. Convicts are therefore excluded from all this productive labor. Mr. Eugene Smith, an authority, says that all the available work under this amendment will not give employment to *one per cent.* of the prisoners. The Superintendent of State Prisons estimates that *fifty* prisoners could do it all. The effect, therefore, is obvious. This amendment will condemn the whole convict-population practically to idleness. Under the Yates law, which secured by legislation what this amendment forces into the Constitution, this very experiment was tried a few years ago. As a consequence the prison-workshops were closed and the wretched prisoners were shut up in their cells. Almost immediately the death-rate in the prisons rose to the highest figure ever known; insanity increased. The prisoners sent forth a wail of protest and begged for any work, however menial. The finances suffered also. The first year there was a deficit of $150,000, and the second year one of

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$370,000, in contrast with the old system, which had been self-supporting. This deficit, of course, had to be made good by the taxpayers, many of whom can ill afford to bear the burden; and no person's wages were increased a penny so far as any one knows.

In the third place, let us consider the injustice of the amendment. It assumes that one class of men may forbid another class of men to work. This is a common and vicious kind of tyranny seen in trades-unions. When, however, it is exercised against a class who, like the State prisoners, are unable to defend themselves or to exercise their natural rights, it is conspicuously base and cowardly. We speak of the *rights* of these prisoners advisedly. Men do not lose all their natural rights and their claims upon society when they enter a prison's walls. Some of these claims, in fact, are immensely increased and strengthened as soon as the condemned are incarcerated; and among these claims are the reformation of character, the preservation of health, and the exercise of an inalienable right to do honest and productive work. By what principle of law or equity is a State to be denied the right to give work to a class of citizens that she has taken to be her wards? It is to be noted in this connection that no cruelty equals the cruelty of which an ignorant proletariat can be capable toward the weak and the defenceless.

Finally, let us consider the inhumanity of the amendment. The men who framed this constitutional amendment were absolutely indifferent to the fate of several thousands of their fellow-citizens. They were either too ignorant to know or too callous to care to reflect that this amendment was primarily a blow at the prisoners and only secondarily a favor to the artisans. In other words, the good that it could do the artisans was infinitesimal in proportion to the evil that it would do the convicts. For the former it provided a possible benefit; for the latter an inevitable disaster. The proof of this is to be found in the facts and figures already stated; and is abundant in all the literature of penology. This proof is so patent and above argument that it is probably well known even to lobbyists and walking delegates. Prisoners cannot be immured in solitary cells without labor without also undergoing physical, mental, and moral deterioration. The sufferings attendant upon such a confinement are worse than what any civilized government has a right to inflict, and can only be compared with those that fell to the lot of political prisoners who rotted in the Bastile under a régime which it was supposed that modern democracy had abolished forever. Such sufferings, in fact, could only be inflicted by an irresponsible despotism on the one hand or an irresponsible populism on the other; so near in effect are the extremes in politics.

We do not care, of course, to venture a prediction as to what will be the force and effect of this evil example set by the great State of New York. We do not know at this writing whether there is a similar law or amendment in actual operation in any other of our States. It is not likely, however, that such jurisprudence will stop where it began. If it is about to inaugurate an era of proscription against the productive labor of prisoners, it sounds the knell to some of the most enlightened philanthropy of the day. We remember to have heard of an incident that occurred in one of our interior States, where a gang of convicts was set to work to carry a pile of bricks from one side of the jail-yard to the other, and then back again, and so on indefinitely. This was done by the authorities on the humane pretence of supplying work that would not compete with honest labor. It is needless to say that such work proved at first a farce and finally a torture to the prisoners and a menace to the discipline of the jail; but such as it is we commend the example to the political penologists of the Empire State as peculiarly appropriate both to the situation and to their intelligence.

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## BOVINE TUBERCULOSIS AT THE NORRISTOWN HOSPITAL FOR THE INSANE.

IN our issue of March 30, 1895, we called attention to the very high death-rate from tuberculosis existing at the Norristown Insane Hospital, a death-rate that compares unfavorably with that of other hospitals, and that we thought needed investigation in order to discover the causes at work.

A special report by the pathologist of the institution, Dr. Florence Hull Watson, giving the results of experiments with tuberculin on a herd of cattle in part supplying the institution with milk and meat, has recently been issued, and, though no attempt is made to show the connection existing between the high mortality from tuberculosis among the inmates of the hospital and a milk-supply from animals suffering with bovine tuberculosis, the report is a very valuable one, not only adding much to the knowledge of animal pathology, but demonstrating

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the diagnostic value of tuberculin in a most conclusive manner.

Probably never before in the history of medicine have so many valuable animals been given over at one time for the purpose of experiment, and the results of this investigation have an interest therefore not only because of the care taken in their collection, but also because of the amount of material placed at the disposition of the investigator.

From Table XXVI of the report we learn that the whole number of animals examined was 206; of this number, 170, or 82.5 per cent., were found infected with tuberculosis, the disease being general in 53 and thoracic only in 114. In only three cases was the udder found diseased.

From other tables in the report it is to be seen that tuberculin was used in 183 animals, 117 of which were condemned as tuberculous after the first injection. The rise in temperature took place in from twelve to fourteen hours, and reached on the average 106.1°F., the normal temperature before the injection being on the average 102.3° F. No relation could be discovered between the degree of reaction and the amount of disease; nor did sex or breed have any influence. Young animals are not well suited for experiment, as in them the temperature in the normal state often varies several degrees. Dr. Watson believes that tuberculosis can develop very rapidly, and in this way she explains the failure of tuberculin to call out a reaction in seventeen animals that at autopsy, two months after the injections, were found slightly tuberculous. The question might be raised here, and it is a very vital one, What effect, if any, has the injection of tuberculin in lighting up tuberculosis present only to a slight degree before the injection? Or are the products of dead bacilli capable of producing tubercles in healthy tissue, as Prudden has claimed?

Every animal reacting to tuberculin was found tuberculous at the autopsy. Dr. Watson, as the result of her experience, states that while infallibility cannot be claimed for tuberculin as a diagnostic agent, yet in proper hands, combined with physical examination, will lead to the discovery of the disease in the majority of affected animals in a given herd, and if these are removed the danger of contamination will be lessened and the infectiousness of the dairy-products reduced to a minimum.

When we consider that 70 per cent. of the cows furnishing milk for the inmates of the institution were markedly affected with tuberculosis, and that for many of the patients this milk was the principal article of food (about 1000 quarts are used in the hospital daily), and that according to the recent investigations of Ernst, referred to in THE NEWS of August 31, 1895, page 244, tubercle-bacilli are found in milk from tuberculous cows, irrespective of the existence of disease of the udder, we are warranted in assuming that the milk-supply stood in a causal relation to the prevalence of tuberculosis among the inmates of the hospital.

In stating this we are well aware of the position many alienists take in regard to the connection supposed to exist between insanity and pulmonary tuberculosis. Yet, Clouston, who originated the term "phthisical insanity," and who is responsible for much that has been written on the subject, in an article contributed to Tuke's *Dictionary of Psychological Medicine*, refers to the fact that under better hygienic conditions the percentage of deaths per 1000 from pulmonary tuberculosis, in insane-hospitals, has been greatly reduced, and whereas in 1862, when he first described this particular form of insanity, he considered it incurable, he now finds that under proper treatment and better conditions recoveries are frequent.

That tuberculosis is more common in insane-asylums than in the community at large no one will deny, but we doubt that it need necessarily be so. It is most frequent when nutrition is interfered with, as in the dementias and melancholias, and in such forms of insanity the tubercle-bacillus, if present in the surroundings, finds a ready soil for development; overcrowding, close confinement, and infected food accelerating its growth.

The result of the investigation at Norristown shows how important it is to be able to control the sources from which food is obtained, and how necessary it is to have the supply of milk carefully and regularly tested, in order that its wholesomeness may be beyond doubt.

Although the trustees of the hospital have so far found dairy-keeping an expensive affair, the advantages to be derived from it far outweigh its costliness. With a little care in the selection of animals and with inspection of the herd at frequent intervals, the need of a repetition of the experiment just ended may never arise, while, on the other hand, a wholesome supply of milk is obtained for the inmates, and one of the sources of infection eliminated.

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# EDITORIAL COMMENTS.

***The Growth of United States Naval Cadets.***—Dr. Henry G. Beyer, a surgeon of the United States Navy, has made a very interesting study based upon a series of measurements of students at the Naval Academy, extending over a period of thirty years. Such examinations are made at intervals of a year, so that each cadet who remains for the full term of four years leaves a record of at least five measurements.

The growth of school-children has formed the subject of a number of investigations by such men as Bowditch, Boas, Porter, Pagliani, Axel Key, and Schmidt, and approximately similar conclusions have been arrived at by these separate observers. Beyer has been very careful to avoid error in drawing his conclusions, and it seems to us that his judgment in the matter is well warranted by the figures he presents. An inconsistency, however, appears in his paper that we would call attention to. Because the cadets are appointed from all parts of the United States, Beyer believes his measurements have a national character—"more national, at least, than the measurements taken from local schools and colleges;" and yet, curiously enough, the great majority of cadets have blue eyes and light-brown hair—a fact that Dr. Beyer himself observes is indicative of an Anglo-Saxon or Teutonic origin. In another place he finds a source of congratulation in the fact that the facial type under investigation is not a mixed one, but "undoubtedly Teutonic in character."

Unfortunately, anthropologists do not recognize a German type, inasmuch as the inhabitants of North Germany are fair and those of South Germany dark; the Irish, too, according to Dr. Wilde, are as often dark-eyed as blue-eyed. Now, although immigration to this country for the last seventy years has been principally from Germany and Ireland (53 per cent.), the representative American can hardly be said to be a North German in type, possessing the elements of as many brunet European types as blond ones, not to speak of admixture with the Negro and Indian races.

From the tables presented we find that the bodily weight increases steadily from the fifteenth to the twenty-third year, declining thereafter as age advances. Height increases mostly between the fifteenth and sixteenth years; for the succeeding two years a rapid decline in the rate of increase occurs, and growth practically ceases. After this a marked increase again occurs, which stops at the twenty-first year; finally, a third upward curve leads to the attainment of full growth.

"Height sitting" (the distance from the perineum to the top of the head) ceases to increase about the nineteenth year, and "height perineal" (the distance from the perineum to the feet) is fully attained at the same age. The circumference of the chest advances rapidly to the nineteenth year, and after that only by small fractions of an inch.

An interesting fact which other observers have also noted is that both the relative and the absolute annual increase in growth is greater for short than for tall boys. If boys of the same age are divided into two groups according as they are above or below the average height or weight, and if these groups are studied for several years, it will be found that the taller will stop growing sooner than the short group, and that the average percentage of increase will not be nearly as great in the former as in the latter. Beyer found that the short boys in the period from sixteen to twenty-two years of age grow 4.2 inches, the middle-sized ones 3.3 inches, and the tall ones only 2 inches. The tall boy is thus, with reference to growth, in reality older than the short boy, his tissues reaching maturity two years sooner.

The measurements of 722 cadets at seventeen years of age gave an average weight of 57.7 kilos (125 pounds); "height standing," 170.3 centimeters; circumference of chest, 82.55 centimeters. At twenty-three years of age the average weight was 65.31 kilos, and the average height 174.29 cm. This is but very slightly in excess of the average attained by Dr. Sargent in his measurements of Harvard students. Gould, in his study of soldiers during the Civil War, gives an average height of 173.6 cm. as that of the true American. According to Topinard, the average stature of the human race, taking the whole population of the globe, is 165 cm., and the tallest race, the Patagonians, average no more than 178.1 cm.

While we must not forget that the measurements of Beyer, Sargent, and Gould are of specially selected groups, and therefore not representative, yet we can safely say that the native-born inhabitants of the United States are to be grouped with the tallest races, being exceeded by few, if any, of the civilized nations.

***Occult Compensation.***—The following letter, written to a reputable physician, needs no comment or explanation:

A. B. C.,
PHYSICIANS' SPECIALTIES,
Room —, —— — ——.
————, O., ————, 1895.

— — ———, M.D.

DEAR SIR: Owing to the fact that I have been recently unjustly ousted from the responsible confidential position I have held with the Amick Chemical Co. of this city ever since its organization, I think I am fully justified in making the most I can of the knowledge I have of the secrets of that concern; especially in view of the fact that the success of the company is largely, if not wholly, due to my management.

With this end in view, I make the following proposition to a selected list of physicians whom I believe I can trust not to abuse the confidence I place in them, but will keep it to themselves for my protection and their personal profit and interest.

I have in my possession photographic copies of the secret formulæ for Dr. Amick's remedies for consumption, in his own handwriting, which include his chemical constitutional medicine, the tablets, and the inhalant. The well-known merits of these remedies make it useless for me to say anything regarding them; I will say, however, that to my personal knowledge they turned down an offer of $50,000 for these same formulæ, and their reason for doing this was because a single year's dividends amount to more than twice that much, while I who have done the hardest work received of these enormous profits a comparative pittance as my portion.

The actual cost of compounding these remedies is merely nominal, although the best of drugs be used.

I will send you *fac-simile* copies of the original formulæ on receipt of $5; also the names of the manufacturers from whom they buy their drugs.

In order that you may not question my sincerity or

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integrity, I respectfully refer you to the enclosed letter to me from Hon. Jno. A. Caldwell, our Mayor; also to a letter written to me by the President of this hoggish corporation while in New York consummating one of my most successful advertising schemes for the concern.

I feel doubly justified in my course, as I am favoring suffering humanity at the expense of a grasping, heartless corporation.

There is no time to be wasted in correspondence. If you are going to accept this offer, you must do so by return mail, for as soon as the Amicks get on to what I am doing they will enjoin me.

Yours respectfully, ——— ——— ———.

P.S.—You may feel it your duty to at once call the Amicks' attention to this, but allow me to call your attention to the fact that by so doing you will be depriving yourself of an invaluable secret and that the Amicks never showed you a favor, or any other interest in a member of the medical fraternity, than to get $10 for a month's supply of medicine.

***Tuberculin versus the Microscope in Iowa.***—The State Board of Health of Iowa was requested by the health-officer of the city of Ottumwa to make a bacteriologic examination of the milk-supply of that city, with a view of ascertaining whether any tubercle-bacilli could be found in the milk. The bacteriologist of the Board accordingly examined 563 samples, and found the bacilli present in quite a number of the specimens, so that of 196 cows examined 29 were set aside as tuberculous because of the microscopic test. The secretary of the Board was not quite satisfied with the results, and the State veterinarian was called in to apply the tuberculin-test. The animals declared tuberculous by the bacteriologist failed to react to tuberculin, and in a herd of 22 cattle, 21 of which had been pronounced sound, 8 responded to the tuberculin-test, and at the autopsy were found markedly affected, 2 of them having extensive involvement of the udder. The bulletin of the Board states that no conflict exists in its department on account of this difference in opinion; the two tests are on trial, and the wish of the Board is to judge them honestly.

The Iowa Board of Health must know that neither the microscopic examination of the milk nor the tuberculin-injection of the cows can determine the *absence* of tuberculosis. Only when positive results are obtained can an opinion be given; the failure to find the bacillus is no evidence whatever of the non-existence of tuberculosis.

The presence of tubercle-bacilli in milk is not easy to determine, and the frequency with which they were discovered by the Iowa bacteriologist would lead one to suspect the accuracy of his observation; but granting that they were found, the failure of the animals to react to tuberculin is no indication that these animals are sound, as the tuberculin-test is in no manner infallible. The State Board of Health of Iowa should sacrifice the suspected animals and determine beyond a doubt whether tuberculosis is present or not.

Not only in the testing for tuberculosis, but in using other methods of diagnosis, the fact cannot be too often stated that the failure to *find* a symptom or pathologic condition is no indication of the absence of that symptom or condition.

***Preventive Inoculations against Cholera.***—The evidence is increasing as to the efficacy of the inoculations made according to the method of Haffkine for the prevention of cholera. From a report recently made by Dr. W. J. Simpson, health-officer of the city of Calcutta, it appears that up to July 15, 1895, 4397 persons were inoculated in Calcutta. Of this number 3302 were Hindus, including 363 Brahmins; 1060 Mohammedans; 25 Europeans; and 10 Eurasians.

In some instances it has been observed that cholera ceased in the course of a few days after inoculations had been begun. In some localities noted for recurrences of cholera, and in which large numbers of inoculations were made, the disease did not appear during the year. In a small community in which the people petitioned to be inoculated, because of repeated outbreaks of cholera, not a single case has occurred. In a group of 36 houses, containing 521 inmates, of whom 181 were inoculated and 340 not, there were among the uninoculated 45 cases of cholera, with 39 deaths, while among the inoculated there were only 4 (fatal) cases. Of this last number, one occurred 459 days after the first inoculation in a child not brought back for the second inoculation, and the other three occurred within a few days of the first inoculation, before protection had really been conferred, and thus before a second inoculation could be made.

The following additional noteworthy observations were reported at a later date. When cholera broke out among the troops at Cawnpore thirteen months after the inoculations there were attacked, among 797 uninoculated, 19 cases, with 13 deaths, and among 75 inoculated not a single case. At Dinapore the inoculations were made during an epidemic, after 13 cases and 9 deaths had occurred. Among 729 uninoculated there were 6 cases with 3 deaths, and among 193 inoculated not a case. At Lucknow, where a portion of the soldiers had been inoculated fourteen or fifteen months previously, there were among 640 uninoculated 120 cases with 79 deaths, and among 133 inoculated 18 cases with 13 deaths.

***College-attendance and Athletics.***—That supremacy in athletics by an institution of learning is the prerequisite and proof of the "success" of that institution has been an assumption that apparently needed no proof. One enthusiastic theorist publicly asserted that the success of his college in football was worth more than a million dollars of endowment. We are very far from believing that the number of students in attendance at a college is any measure of the value of that institution to humanity or to its students. This would be an error of observation and logic akin to that of the football-logicians, but, proceeding upon the assumption of these excellent reasoners, we call attention to the fact that the freshman-class at Yale—Yale supremely victorious over Harvard in athletics—is smaller than that of last year, whilst the freshman-class of Harvard is larger than that of last year. We have frequently prophesied this, but we hardly expected that it would come about so speedily.

***"New York as a Medical Center."***—After a few weeks' stay in New York our valued contemporary, *The Medical and Surgical Reporter*, returns again to its old home in Philadelphia, where we trust its commercial troubles may end and its customary prosperity long continue.

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## SELECTION.

### "GREAT WITS AND MADNESS."

IF a man in these days has the fatal gift of genius, the best thing he can do is to conceal the fact, and be content to be a "mute inglorious Milton," lest he be sent to a madhouse. With detectives like Lombroso, Max Nordau, and Mr. Nisbet about, the poor child of Apollo would have no chance. As if this trio of "smellers out" were not enough, now we have L. Forbes Winslow, D.C.L. Oxon, LL.M., M.B. Camb., prowling about (marry, tropically, in the best pages of *The Humanitarian*) seeking what man of genius he may devour. For this multiliterate philosopher the line that separates "the babbling drivelling idiot from the man of transcendent genius" is "fine and fragile." We are told that "the development of the brain and nervous system on which the poetical inspiration depends" is nearly allied to "that cerebral condition so frequently associated with insanity." We gather that poets and men of genius generally suffer from "excessive expansion of brain-matter." It is also discomforting to be informed that "in the majority of studious men there already exists a predisposition to cerebral disease which may have actually existed." Further on we read that "Byron had—1784—as a child a temper sullenly passionate." The sentence is a little obscure, but on any construction of the text it would appear that the author of *Childe Harold* must have been the most precocious infant phenomenon of whom there is record if he displayed these unamiable characteristics four years before he was born. Of Scott we are told that although his "early composition" was wonderful, "there was evidence to the psychologist of *that flaccid degeneration of tubular neurine* which probably began with his reverses," etc. Poor Scott! Torquato Tasso may be accounted fortunate that he only suffered from "mania periodique" and "phantasmagoria." The statement that "Jean Jacques Rousseau, the great French poet, suffered from a bane of moral insanity" suggests that the writer had never heard of Jean Baptiste, the rhyming namesake of the Citizen of Geneva. Coleridge's life was not exactly a model of self-restraint, but it is painful to learn that he "became an habitual resorter of drugs." The "premonitory cause" of Charles Lamb's "mental condition becoming unhinged" is alluded to. For the discovery of "Edgar Allen, poet," the printer's devil is probably responsible. Dr. Forbes Winslow sees in the insanity of genius "one of the many awful proofs of immortality," but he does not condescend to explain this mysterious utterance. Rasselas said that his instructor had convinced him that it was impossible to be a poet; had he read Dr. Forbes Winslow's article he would have been thankful for this impossibility. Surely it is far better to plod on along the beaten road of life than to soar into the empyrean and fall a victim to "flaccid degeneration of tubular neurine."—*British Medical Journal*, August 24, 1895.

### "GREAT SCOTT!"

AT the last session of the California Legislature a Demosthenean orator, clad in a Bismarckian countenance and a Prince Albert coat, and a former partisan of Carl Brown, Coxey, and other industrial agitators, appeared upon its floor and circulated the following printed handbill or circular-letter to the members of both branches of the Legislature:

SACRAMENTO, CAL., March 9, 1895.

Hon. ———

DEAR SIR: All that LIBERTY means, all that JUSTICE means, and all that PROGRESS means as one united prayer, appeals to you not to hinder the passage of S. B. 830, granting only one favor to the State Therapeutical Society to have a Board of Examiners. Let California make history and throw her protection over the class of healers. We plead for viz.: Those who are liberal in medicine, and those who practice hydropathy (*i. e.*, the water-cure and baths), electricity, massage, mental or scientific healing, providing they have legal diplomas, or evidence of competent instruction and experience. This is our requirement.

PLEASE vote for it and no longer hold this large, intelligent class of practitioners out. They cannot give the death-certificate if one dies, but although over half of the best families employ them. They have to call in an M.D., or "two citizens, or a coroner, or a midwife," often too ignorant to write, to name the disease, and sign that certificate, while we are barred out. Great Scott! To whom CAN we go but YOU? Medical doctors hunt us down with threats and suits. This bill takes no right from them, but it will let justice lie toward merit. This new society has a good college back of it, of able medical men; let the Board simply be granted us as you have to the other school and societies. WHY NOT? Why shall hypnotism and other harmful forces be used by charlatans when we can regulate them and the forces if you give us our Board and let us prove what we claim. This society is a corporation and entirely self-sustaining.

We trust your JUSTICE, KINDNESS, and WISDOM, and ask ONE favor. Will you grant it? If so, you will go home pleased, and millions will rejoice. Come men, we beg it of you in your true justice, and you will do it. We bide in hope, yet in painful suspense. We, the directors, officers, and members of the California State Therapeutic Society; also the directors, officers, and professors of the College of Science, standing in with this Society, authorize the presentation of these interests by PROF. ———, Ph.D.

[*The National Popular Review.*]

## SOCIETY PROCEEDINGS.

### AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

*Eighth Annual Meeting, Held in Chicago, September 24, 25, and 26, 1895.*

(Concluded from page 392.)

The President, DR. J. HENRY CARSTENS, of Detroit, delivered his address. He selected for his subject

THE AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

In speaking of specialists, he said: "What we do is not for us, but for the whole profession. We think we can do more by limiting ourselves to a particular branch, and what little mite we add is not for us as

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specialists, but is to be the inheritance of the whole profession. We want the whole profession to be elevated, to become accurate, and as nearly scientific as possible in medicine. We want to raise medicine in the estimate of the laity, so that it shall not be laughed at and ridiculed in the pulpit or court-room, but that it shall shine forth as an art and as a science and the noblest vocation."

DR. F. BLUME, of Pittsburg, read a paper entitled

ETIOLOGY OF ECLAMPSIA GRAVIDARUM.

He said that the etiology of this grave complication of labor is still undecided. The theory that has found the most advocates is based upon the investigations of Leber, who first called attention to the relations between albuminuria and puerperal convulsions. Leber's observations were confirmed by various authors, and led to the view that the attacks were the result of blood-poisoning by urea; that they were uremic and identical with those occurring in diseases of the kidney. According to Spiegelberg, all cases of true eclampsia are of uremic origin. The cause is a renal lesion that either pre-existed or developed during pregnancy. In 400 cases of eclampsia observed by Olshausen, Dührssen, and Gusserow, albuminuria was present in 98 per cent. Mackenrodt found that albuminuria developed during the second half of gestation in 46 per cent. in women whose kidneys were normal before conception took place.

DR. H. W. LONGYEAR, of Detroit, read a paper on

THE PROPHYLACTIC TREATMENT OF ECLAMPSIA GRAVIDARUM.

He recognizes two varieties of convulsions that may occur as a result of the pregnant or puerperal condition —first, those of a purely nervous character, which usually occur in women of neurotic habit and those who are predisposed to epileptic attacks; and, second, convulsions that occur as a result of some change in the blood and tissues of the patient due to renal disease, as especially indicated by the presence of albumin in the urine.

Early diagnosis is of the utmost importance to the success of any preventive treatment, and to insure this the urine of every pregnant woman should be systematically examined by the physician every two weeks after the sixth month. When albumin is found to be present immediate treatment should be commenced and daily examinations of the urine made thereafter. The prophylactic treatment was divided into dietetic, medicinal, and operative, the latter to be adopted as a last resort. In simple cases of albuminuria without scanty secretion, many patients will do well and be tided along to safe confinement on an exclusive milk-diet without medication.

DR. W. P. MANTON, of Detroit, followed with a contribution entitled

SO-CALLED PUERPERAL ECLAMPSIA IN ITS RELATION TO INSANITY.

He had recourse to three sources of information—statistics from private practice; statistics from lying-in hospitals; and the records of hospitals for the insane. Never having had a case of insanity following eclampsia in his own practice, he had collected 8868 cases of delivery reported by eight competent observers, published in current medical literature. In this number he found that eclampsia is noted as having occurred 33 times. In not a single instance is it stated that insanity followed the convulsive attacks. During the four years from 1891 to 1894, inclusive, 282 women were delivered in the wards of the Detroit Woman's Hospital, eclampsia occurring in two cases. Both of these recovered without symptoms of mental alienation. This seems the more remarkable, as of the 282 patients confined, 233 were unmarried. During the same period there were admitted into the three principal asylums of Michigan, with which Dr. Manton is connected, 1271 female patients. In this number the insanity was attributed to puerperal causes in 110 instances, but in only two cases was eclampsia put down as the exciting cause.

DR. RUFUS B. HALL, of Cincinnati, Ohio, read a paper upon

THE PREVENTION OF PELVIC INFLAMMATION IN WOMEN.

He pointed out some of the most frequent causes of this condition, placing septic infection following abortion and gonorrheal infection as the most important. He advocated the dissemination of knowledge among the laity by the family-physician as a potent remedy for the prevention of these troubles. He especially advocated that women should be warned by their physicians of the great danger of abortions in the early months of pregnancy. It is well recognized by the profession that many married women produce abortion in the early weeks of pregnancy, and it is during this time that the membranes are retained and septic endometritis is induced, leading to salpingitis, pyosalpinx, and suppurating ovaries later. It was also advocated that the profession should on every legitimate occasion impart knowledge on the subject of gonorrheal infection in young men and boys. It is well known that men frequently infect their wives years after they themselves believe they are cured of their gonorrhea. The belief was expressed that if the profession imparted this knowledge to the laity, it would only be a short time until many of the abdominal sections now made for the relief of inflammatory diseases will not be called for.

DR. A. H. CORDIER, of Kansas City, Mo., read a paper entitled

DIAGNOSIS OF INTRA-ABDOMINAL TUMORS.

He outlined the methods and procedures that should be followed in examining patients. Tumors through which gases are detected by gurgling indicate either an involvement of the bowel in the tumor, or pressure of the growth on the bowel with adhesions to the same. If this symptom be coupled with a history of a pyloric carcinoma or a cecal growth, it is confirmatory in its indications. Some growths have a disposition to change positions, but all growths have one or more attachments, and it is safe to infer that this attachment is to the site at which the neoplasm had its beginning, and the movements will be only around an arc of a circle with the pedicle-attachment as the center. Adhesions may prevent a growth from moving, or may anchor a tumor in a locality far from its original point of starting. The history of inflammatory attacks and the pain will come to the rescue here. The character of the pain and the amount and area of tenderness are invaluable aids. The

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withdrawal of free fluid from the peritoneum will often show the presence of a tumor before undetected. Pus in the pelvis is one of the conditions easiest of diagnosis.

DR. JAMES F. W. ROSS, of Toronto, read a paper entitled

PNEUMO-PERITONEUM.

He reported a very instructive case of this affection, and classified pneumo-peritoneum as follows: First, intraintestinal tympanites; second, extraintestinal tympanites. *a*. Traumatic: 1, from without; 2, from within. *b*. Non-traumatic or spontaneous: 1, without liquid, gas odorless; 2, ascites and gas odorless or fetid; 3, pus and fetid gas. Third, intraintestinal and extra-intestinal tympanites.

With regard to the treatment, exploration by means of a knife and the finger is free from the objection that obtains in the case of a stab in the dark by a trocar. In all of these cases an exploratory celiotomy should be performed. Even after the removal of the pressure on the diaphragm the breathing improves. It has been stated by one operator that it is necessary in puncturing such cases to allow the gas to escape very gradually.

DR. HERMAN E. HAYD, of Buffalo, reported a case of

LARGE HYDRONEPHROTIC CYST SIMULATING OVARIAN TUMOR; ABDOMINAL HYSTERECTOMY, FOLLOWED BY RECOVERY.

The case was interesting on account (1) of the large size of the hydronephrotic cyst, as well as the absence of pain or distress in its formation; (2) of the obscurity of diagnosis, or, at all events, the resemblance of the cyst to an ovarian tumor; (3) of the increased functional activity of the one kidney—in fact, its ability to functionate vicariously for the other organ; and (4) of the ease and facility with which the tumor was removed through the abdomen, and the uninterrupted convalescence for thirteen days. (5) At no time was albumin found in the urine, and quantitatively and qualitatively the secretion of urine was above the average. At one testing the patient passed 287 grains of urea in twenty-four hours. There was no evidence of stone or symptoms of previous ureteritis.

DR. WILLIAM H. MYERS, of Fort Wayne, Ind., read a paper entitled

THE LIMITATION OF CRANIOTOMY.

He said that of late years the happy results following Cesarean section and Porro's operation have done much to remove the necessity of deciding the question whether the life of the mother or that of the child is to have preference, as it is now quite possible to save both. The high death-rate after craniotomy must be referred to the period preceding the introduction of asepsis and antisepsis. The fatality of Cesarean section has radically changed, owing to the modifications in the treatment of the uterine wound, and a perfect technic; these have lowered approximately the death-rate to that which is claimed for difficult embryotomy, a mortality of 10 per cent., with the saving of 95 per cent. of infantile life. It was urged that Cesarean section should be performed as soon as the diagnosis can be assured.

DR. EDWIN RICKETTS, of Cincinnati, reported

THREE CASES OF GALL-BLADDER SURGERY,

and drew the following conclusions: (1) The continual absence of bile from the intestinal discharges does not necessarily signify that there is no operative condition of the gall-bladder existing. (2) The bile may flow periodically, and when this occurs, symptoms demanding surgical interference are generally present. (3) Jaundice, when present, is very satisfactory evidence of biliary obstruction, although it is not always present. (4) Pains in the region of the gall-bladder coming on at intervals and in connection with jaundice, or without jaundice in connection with clay-colored stools, is positive proof of biliary obstruction, and when this exists an operation should be resorted to. (5) Persistent clay-colored stools, whether attended with severe pain or jaundice, are the most reliable symptoms governing operative interference. (6) When a stone is primarily engaged in the gall-bladder, then a pathologic lesion begins. (7) Obstruction of the common duct may be due to external trauma, such as a blow received over the region of the liver. This may produce a catarrhal condition of the common duct leading to entire stoppage of the flow of bile. (8) A solitary calculus may be engaged in the lower end of the gall-bladder, causing thickening of the bladder-wall and also periodic escape of its infected or non-infected contents. (9) Calculi may be formed in the hepatic or common duct. (10) The importance of probing the hepatic duct through the incised bladder in all cases operated upon, whether the condition present be catarrhal alone or associated with the presence of stone.

DR. W. E. B. DAVIS, of Birmingham, Ala., contributed a paper entitled

OPERATIVE PROCEDURES FOR THE RELIEF OF OBSTRUCTION OF THE BILIARY DUCTS.

He alluded to a large number of experiments that he had made on dogs, and in which he had tested the value of gauze in draining bile in injuries of the gall-bladder and ducts. In some cases he had removed the gall-bladder without tying the duct, but by packing with iodoform-gauze, and the animals recovered. In other instances in which the gall-bladder and ducts were incised and the gauze was packed around the openings, no stitches being used, the animals recovered. Complete walling off of the general cavity was noted when the abdomen of the animals was reopened.

Dr. Davis also reported a case of obstruction of the common duct in a human being, in which he had removed the gall-bladder and a portion of the cystic duct, packed the wound with gauze after introducing a glass drainage-tube, and there was also complete walling off of the general cavity. He advised, in cases of obstruction of the common duct, that no attempt should be made to suture the opening after the obstruction has been removed, as the patient's condition is nearly always serious, and a prolonged operation will terminate fatally. The obstruction should always be removed, if possible.

The experiments detailed demonstrate conclusively that the peritoneum is capable of taking care of a small amount of bile, but that large quantities or a constant extravasation will produce a fatal peritonitis usually in from twenty-four to forty-eight hours. It was thought that the field of cholecystenterostomy is a very limited one.

DR. W. B. DORSETT, of St. Louis, read a paper entitled

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THE USE AND ABUSE OF THE UTERINE CURET.

He said that the more he had used and seen used the uterine curet, the more he was impressed that the selection as to the shape and form of the instrument in a given case is not always a wise one; that a proper knowledge of its use should be obtained before trying to use it; and that it is not a cure-all. Its use should be practised only in conjunction with other treatment. The blunt curet (as sold in the shops) is to be viewed as a dangerous instrument. The instrument with a sharp cutting-edge, properly constructed, is a most useful one, and in the treatment of intra-uterine inflammatory conditions is the *sine qua non* of success. In order to secure a good scraping-instrument the sharp edge should stand at an angle of 60° with the shaft or handle. If a greater angle be adopted, the instrument will not scrape thoroughly, and a less angle is liable to lead to incision of the uterine wall unless great care be exercised. Cases of perforation of the uterine wall are on record, and it was thought that they are due to want of care in the selection of the proper instrument. The dull or blunt curet should never and under no circumstances be used.

DR. THOMAS J. MAXWELL, of Keokuk, Iowa, followed with a paper on

SOME ANOMALIES FOUND IN ABDOMINAL SURGERY.

A case was reported in which an incision in the linea alba disclosed a reddish tumor not unlike a pearl-colored ovarian cyst. The tumor was about seven inches in diameter, and proved to be the uterus containing an interstitial fibroid. An incision about four inches in length through the anterior fundus was made and a white fibrous tumor of the dimensions of a cocoanut was shelled out with the fingers. The incision into the uterus was closed with buried catgut sutures, fortified with one silk suture in the center of the cut. A large ovarian tumor was then brought into view, attached by a very broad pedicle to the right broad ligament. The tumor was emptied of its contents, two-and-one-half gallons, and proved to be a monocyst. The patient recovered. The case is believed to be the first in which an interstitial fibroid, complicating a large ovarian tumor, was enucleated, leaving the uterus intact. The opinion was expressed that many uteri and their adnexa might be preserved by a similar procedure, and the patients left unmutilated.

DR. B. M. HYPES, of St. Louis, read a paper entitled

SHOULD INTRAUTERINE INJECTIONS OF GLYCEROL BE USED FOR THE INDUCTION OF LABOR?

He maintained that such injections are often inefficient, especially so in doses under 50 c.cm. They are liable to be followed by shock, air-embolism, thrombosis, metritis, and sepsis. They may and sometimes do produce glycerol-poisoning—that is, decomposition of the blood-corpuscles, resulting in diseases of various organs, but more especially in nephritis with hemoglobinuria. The method involves no consideration of the life of the child, and hence results in great mortality. Its use should be abandoned or the dosage reduced, especially in subjects with pre-existing renal affection.

DR. M. B. WARD, of Topeka, Kan., read a paper entitled

HAS GYNECOLOGY RECEIVED JUST RECOGNITION AS A SPECIALTY?

The purpose of this paper was to call attention to the efforts necessary on the part of the Fellows of the Society and other members of the profession to elevate to a position with the other specialties the standard of gynecology, and at the same time to discuss the best means to educate the profession and laity to the all-important truth that to be a gynecologist one cannot at the same time be a general practitioner. As specialists, the duty of gynecologists is clearly in the line of spreading the gospel of truth regarding the proper methods of examination and treatment of the numerous diseases peculiar to the female sex, in order that every physician shall have a reasonably intelligent understanding of the methods of dealing with the simpler forms of disease. Dr. Ward said the line must be drawn, and, when once fixed, strictly followed before gynecologists can expect to command and receive just recognition as specialists. This advice must naturally mean a great financial sacrifice on the part of those who have been combining the entire field of surgery with gynecology. Such a sacrifice, however, will be as bread cast upon the waters, to return after many days. It may even temporarily almost take the bread from the mouths of the gynecologist's children; nevertheless, it is the only course to pursue if gynecology is ever to be recognized as a specialty whose disciples shall receive the encomiums to which they are justly entitled.

DR. L. H. LAIDLEY, of St. Louis, Mo., read a paper entitled

SURGICAL TREATMENT OF PERFORATION OF THE BOWEL IN TYPHOID FEVER.

He said that early diagnosis and operation offer the greatest chances for recovery. If perforation of the bowel exists, it is the duty of the surgeon to make an exploratory incision, close up the opening, and cleanse the abdomen. The more rapidly the operation is accomplished in closing the perforation, which is usually single, and because of the danger in prolonging the operation, the better. In selecting a method for the closure of the perforation a Lembert suture should be used for small openings; for the larger openings, when the lumen of the bowel is contracted by the use of the interrupted suture, resection, with the use of the Murphy button, is the most advisable course to pursue. It was urged that greater interest be taken in educating the profession to select the cases, many of which are overlooked, to be placed in the hands of the surgeon and thereby reduce the mortality below 100 per cent., at which it heretofore has prevailed.

DR. J. B. MURPHY, of Chicago, followed with some remarks on

TYPHOID PERITONITIS,

in which he reported some twenty-eight cases that had been operated upon by different surgeons. A case reported by Dr. Van Hook, of Chicago, was the first to recover. Another case was operated upon by Dr. Abbe, and one by Dr. Ill, both of which recovered. Dr. Murphy also reported cases upon which he had himself operated with success. He holds that early diagnosis and prompt operative interference offer the greatest chances for recovery.

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DR. H. W. LONGYEAR, of Detroit, read a paper entitled

KRAUROSIS VULVÆ—A CONTRIBUTION TO ITS PATHOLOGY AND THERAPEUTICS.

All the cases of this affection that he had seen had been in women who had passed the fortieth year, and in each case the symptoms were manifested coincidentally with those due to the menopause. In the first case in which the disease was recognized the woman was still menstruating, although irregularly, and the symptoms of the kraurosis had troubled her for about a year, the local appearance of the disease indicating that it was in an early stage of development. In the second case the symptoms had been manifested for six or seven years before the menstrual function had entirely ceased. The patient's ovaries had been removed two years previously. The kraurosis was found to be in the advanced stage of atrophy. In the third case the symptoms of the disease began with the cessation of the menstrual function, and examination four years later showed that the kraurosis had attained what might be called, for comparison, the middle stage. The treatment for this affection is both operative and medicinal.

DR. C. C. FREDERICK, of Buffalo, read a paper entitled

NEURASTHENIA ACCOMPANYING AND SIMULATING PELVIC DISEASE.

He defined neurasthenia as an exhaustion of the nervous system, more particularly the sympathetic nervous system, due to malnutrition. After dealing with the symptoms encountered, he said that there is a class of women in whom neurasthenia simulates pelvic disease. It occurs in those of a nervous temperament. It is a frequent ailment among American women. It is seen alike among the rich and the poor, the fleshy and rotund, as well as the thin and spare of form. With reference to treatment, to correct so far as possible the habits of the patient that lead to nerve-tire, general tonic treatment, and good environment and, above all, the rest-treatment of Mitchell, bid fair to do as much for these women as human skill has thus far devised. Many of them can be nearly or quite cured, and others can only be partially relieved. Removal of tubes and ovaries which are simply tender and not diseased always adds to the suffering.

The following officers were elected: *President*, Dr. Joseph Price, Philadelphia, Pa.; *First Vice-President*, Dr. A. H. Cordier, Kansas City, Mo.; *Second Vice-President*, Dr. George S. Peck, Youngstown, Ohio; *Secretary*, Dr. William Warren Potter, Buffalo, N. Y.; *Treasurer*, Dr. X. O. Werder, Pittsburg, Pa.; *Judicial Council*, Drs. C. A. L. Reed, James F. W. Ross, L. S. McMurtry, A. Vander Veer, and J. Henry Carstens.

On motion, the Association adjourned to meet in the city of Richmond, Va., the second Tuesday in September, 1896.

***The Interstate Medical News*** is the title of "an independent quarterly journal of medicine, surgery, and allied sciences," published at Sioux City, Iowa, by Drs. William Jehson and J. H. Talboy.

## *AMERICAN PUBLIC HEALTH ASSOCIATION.*

*Twenty-third Annual Meeting, held in Denver, Col., October 1, 2, 3, and 4, 1895.*

FIRST DAY—OCTOBER 1ST.

THE Association was called to order by the President, DR. WILLIAM BAILEY, of Louisville, Ky.

DR. HENRY SEWALL, of Denver, Chairman of the Local Committee of Arrangements, made a brief report, in which he called attention to the excursions that would be given to the members and their wives. He also welcomed the Association on behalf of the local medical profession.

The REPORT OF THE EXECUTIVE COMMITTEE was then read by SECRETARY WATSON, of Concord, N. H., and included the presentation of some sixty or seventy applications for membership and their election.

The reading of papers was then proceeded with.

DR. JOSIAH HARTZWELL, of Canton, Ohio, read an exhaustive paper entitled

THE MISSISSIPPI RIVER AS A SEWER.

He spoke of the wonderful extent of the fertile lands of the Mississippi Valley as compared with the valleys of the Rhine, the Nile, and the agricultural lands of the Chinese. Figures were given showing the number of dead animals, tons of sewage, etc., that are thrown annually into the river, and as a consequence typhoid and other fevers resulted from the pollution of the waters. The city of Chicago was severely criticised for using the Chicago River as a sewer. The case of Leeds, England, was cited, in which the city was prohibited by law from polluting the river on complaint of people living below the city. He thought the same course would eventually be adopted in this country. He deplored the action of the Pittsburg garbage-boats, which polluted the Ohio River, and quoted from Pittsburg papers denouncing this action. The government should put a stop to the pollution of its streams; but as a rule the average politician is not a sanitarian. Every other nation has its national board of health, and the time has arrived when the United States should follow this example, and it is only by such a course that the Mississippi can be protected from defilement by these two principal feeders.

DR. PETER H. BRYCE, of Toronto, followed with a paper on

POLLUTION OF WATER-SUPPLIES.

He spoke more particularly of the waters dividing the United States from Canada, and related how, during the past summer, he had assisted, together with government-cutters, in capturing a number of garbage-boats sent down from Detroit with hundreds of tons of garbage, and narrowly avoided an international dispute. He scored the various cities on the American side of the streams for paying little or no attention to the cities below, and suggested that the cities be fined $250 per day until they built sewage-works. International disputes were bound to arise, and the only feasible way to avoid trouble was to make stringent laws and see that they were enforced.

DR. E. WENDE, of Buffalo, said that Buffalo disposed of its garbage by cremation, and that the dispute which arose between the Canadian Government and the

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Buffalo garbage-contractors was because the latter dumped earth into the river.

THE REPORT OF THE COMMITTEE ON ANIMAL DISEASES AND ANIMAL FOODS

was next presented by DR. D. E. SALMON, of Washington, D. C., chairman.

MR. E. C. JORDAN, of Portland, Maine, contributed a paper on

CAR-SANITATION,

in which he described the methods adopted by the Pullman and Wagner companies in maintaining and cleaning sleeping-cars.

DR. DOMINGO ORVAÑANOS, of the City of Mexico, forwarded a paper on the general subject of

CAR-SANITATION,

which was read by DR. C. O. PROBST, of Columbus, Ohio. He made the following recommendations:

1. Watchfulness on the part of local sanitary authorities to whom pertains each of the railroad-stations with large traffic, and with the object of preventing the embarkation of individuals who might transmit diseases.

2. The appointment of medical inspectors on the lines or in the places where it is considered necessary.

3. That the railroad-cars should be furnished with cushions and hangings that can be easily taken off and replaced.

4. The disinfection of the cars themselves, either wholly or in part, whenever the medical inspectors should deem it advisable.

5. The prohibition, under severe penalties, of expectorating in any part except in the cuspidors, of which a sufficient number should be provided, and which should contain a solution of mercuric chlorid, 1 : 1000.

PROF. S. H. WOODBRIDGE, of Boston, Mass., transmitted a paper on

THE VENTILATION OF RAILWAY-COACHES,

which, in the absence of the author, was read by DR. DURGIN, of Boston.

It was pointed out that in all ventilating undertakings but one-half of the requirements are fulfilled when the most perfect apparatus conceivable is furnished. The excellence of a tool does not insure the quality of its product. Quite as much depends upon the user as upon the tool, and not infrequently a superior apparatus is made (on its reputation) to bear the burden of the operator's infirmities. It would seem to be of more than doubtful utility to equip coaches with carefully designed means for ventilation unless railroad-employés are systematically trained in their use and they and the travelling public are educated to habits of cleanliness and are free from the trouble-making notions and imaginings that prevail, even among cultivated people, with reference to ventilation. The proper function of ventilation begins only after cleanliness has done its most perfect work. For a long time to come to an innocent and dutiful ventilation is likely to be laid the sin of uncleanliness of person and environment.

DR. GRANVILLE P. CONN, of Concord, N. H., Chairman of the Committee on Car-sanitation, presented an elaborate report showing the difficulties of inaugurating a system of car-sanitation that would be satisfactory. Only on one road had the matter been gone into systematically by the officials. The public, however, is becoming more and more critical each year upon matters connected with the hygiene of cars and hotels; nor is it considered out of place to commend or condemn the sanitary conditions obtaining along the line of public travel. The world moves on, and sanitation that would have been considered fairly good a decade ago will not be tolerated without a protest to-day. The through line that takes the most advanced position in alleviating the discomforts of the traveller; that shows by the cleanliness of its cars, their heating and ventilation, and, above all, by the uniform courtesy of its employés, the fact that it has a department of hygiene, as well as of surgery, will reap its reward and save thousands of dollars in its advertising department, for no amount of printer's ink will cover want of courtesy on the part of trainmen, or of unnecessary want of sanitation in the car-service; neither will the public hesitate to proclaim to the world their dissatisfaction. On the other hand, to receive the full and entire approbation of the travelling public is an advertisement that money will not buy, and to obtain which should be the ambition of every railroad-corporation.

DR. JOSEPH J. KINYOUN, of Washington, D. C., called renewed attention to the disinfection of sleeping-coaches, a process that should be gone through at the end of every trip lasting over twelve hours. He thought that as the sanitation and ventilation of cars could be carried out cheaply, and as it was certain that tuberculosis and other diseases could be transmitted from State to State, more stringent measures should be enforced. He spoke of a new disinfectant called formalin which he had found to be much more effective than anything he had so far used.

In the evening addresses were delivered by Hon. A. W. McIntire, Governor of Colorado, and Hon. T. S. McMurray, Mayor of Denver.

Then followed the Annual Address of the President, DR. WILLIAM BAILEY, of Louisville. He said the Association numbered among its members some of the most illustrious sanitarians of the continent. The Association had an object-lesson of the good it had done by a reduction in the death-rate of Denver of 50 per cent. The past year had been a good one from a health standpoint. Cholera threatened the Western border; but through the efficient corps of health-officers in San Francisco the disease might be prevented from spreading. He spoke of the importance of quarantine-regulations and the value of the report on the purity of water-supplies. A number of college-professors were unable to attend the meeting because of the college-sessions having commenced. He therefore suggested a change as to the time of meeting. The Association should perfect its plans to celebrate the centennial anniversary of the discovery of vaccination. He suggested a memorial report. He said there was some hope that in time they would be able to afford immunity from such diseases as cholera, scarlet fever, diphtheria, and tuberculosis, as we now have immunity from smallpox.

REV. CHANCELLOR MCDOWELL followed with a plea for those who did not belong to the Association to aid in the efforts of purification and in sustaining the hands of health-officers.

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SECOND DAY—OCTOBER 2D.

The Treasurer's report was read and referred to an auditing committee, who subsequently reported that they had found it correct.

Resolutions were then taken up. Dr. Mitchell, of New Jersey, introduced a resolution to this effect, that

WHEREAS, An order of the Postmaster-General has prohibited the use of the mails for the transportation of diseased tissues; therefore be it

*Resolved*, That the American Public Health Association respectfully requests the Postmaster-General so to modify the order now in force that specimens of diseased tissues, when properly enclosed in approved mailing-packages, may be admitted to the mails for transmission to State and municipal laboratories.

Several samples of tubes and cases for the transmission of bacteriologic specimens were exhibited.

DR. C. N. HEWITT, of Red Wing, Minnesota, introduced the following resolution, which was unanimously adopted by a rising vote:

*Resolved*, That this Association has heard with profound sorrow of the death of Louis Pasteur. That it offers to his family, to his assistants at the Pasteur Institute, to his country, to the members of the profession, sincere condolence in the loss of a master of science. His work for the alleviation of human suffering is as he would have chosen—his everlasting monument. His example of an humble and attentive servant and student of nature is the precious legacy he has left us.

In addition to this resolution a cablegram was sent, on motion of Dr. Felix Formento, of New Orleans, to Dr. Roux, of Paris, containing the words: "The American Public Health Association mourns the loss of Pasteur."

The reading of papers was then taken up.

DR. H. B. HORLBECK, of Charleston, S. C., read a paper on

MUNICIPAL STEAM-DISINFECTION,

and DR. CHARLES V. CHAPIN, of Providence, R. I., one on

DISINFECTION IN AMERICAN CITIES.

Modern methods of disinfection, as practised in the progressive cities of this country, were considered at considerable length. The statistics of the second paper were gathered from fifty cities in this country and Canada. Only two out of this number disinfect after measles and all the minor contagious diseases. These are Rochester and Toledo, and their systems are very thorough. New York, Brooklyn, and Philadelphia, he said, devote particular attention to the prevention of the spread of tuberculosis. In Detroit, Denver, and Newark the favorite method of fumigation is with sulphur. St. Louis uses steam, and several other cities mercuric chlorid.

DR. H. C. CROUCH, of Denver, Col., read a paper on

THE MICROSCOPIC DIAGNOSIS OF DIPHTHERIA BY A NEW STAINING-METHOD.

He said that diphtheria-bacilli, as seen in preparations from cultures, vary in size, the larger ones particularly presenting characteristic features in the way of club-shaped ends and irregular staining, but all forms showing a tendency to the alteration of deeply and lightly stained portions. In addition to this, and distinct from it, are certain round or oval bodies which may be made apparent by certain methods, the existence of which was brought to our attention by Babes, Neisser, and Ernst. The method pursued by the last was to stain strongly with hot methylene-blue, and follow with bismarck-brown. These bodies would be blue, the rest of the bacillus being brown. Dr. Crouch had been investigating the feasibility of employing this peculiarity of the diphtheria-bacillus to differentiate it from other bacilli found in the mouth, and with a degree of success beyond expectation. He had found, likewise, simpler methods of staining, and peculiarities that he believed to have escaped attention hitherto.

If a fresh serum-culture is stained momentarily with a 1 per cent. solution of methyl-green, it is often possible to bring out these bodies without further treatment. Treated thus they present the appearance of reddish granules in a faintly green bacillus, usually one at each end. By staining with methyl-green more strongly and following with methylene-blue, bacilli with red dots resembling spores will be seen. These bodies have apparently a peculiar affinity for methyl-green, with which they enter into a chemic combination, resulting in change of color from green to red. Dr. Crouch had consequently employed methyl-green for their detection. By adding other colors the penetration of the methyl-green may be increased, and a double stain obtained immediately. Dahlia had been found most useful, employed in the following proportions: One part of 1 per cent. dahlia in water, 5 parts 1 per cent. methyl-green, and 4 parts water. If either color predominates in the stain too decidedly, the other color is cautiously added until the desired result, as tested on the bacilli from a culture, is obtained.

The stain works instantaneously, and if too deep the effect is not obtained. In such a case the cover-glass may be treated quickly with bismarck-brown, which replaces the dahlia in the body of the bacillus, leaving the bodies described standing out in contrast. Dr. Crouch had tested this method in a large number of cases during the last six or eight months, and had never failed to find the result of the culture positive when he found these forms present in the cover-glass examination. In one case in which he had diagnosticated diphtheria the first culture was unsuccessful, but the second culture confirmed the diagnosis, which fact seemed to indicate that the direct examination should always have its place in addition to the culture.

These bodies are not considered to have any connection with spores, in spite of their superficial resemblance. They are found in the greatest numbers in young, freshly growing cultures, and are much less abundant in older cultures. They may be readily detected in cultures only a few hours old, and thus made use of to confirm a diagnosis earlier than the full development of the culture. That they are not degenerative forms is evident from the same considerations. Dr. Crouch inclines to attribute a nuclear nature to them, and proposes the name nucleoid bodies. They are evidently connected with the active growth and are absent in the resting-forms, suggesting thus the resemblance with indirect cell-division. Being particularly abundant during the earlier and more rapid growth, they are readily found in the earlier stages of the disease, and from the ease with which they may be brought out, they acquire a very

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great practical importance in the microscopic diagnosis of diphtheria.

Dr. Edward Jackson, of Philadelphia, read a paper entitled

SUGGESTIONS AS TO OCULAR HYGIENE IN SCHOOLS.

He said the child is not taught, in the first place, how to use its eyes; and, secondly, it is not taught how to avoid eyestrain. Much of the work hitherto done in ocular hygiene has been merely in showing the defects existing, without pointing out any remedies. Even if it were customary to have the eyes of children examined, it would not be sufficient. One of the difficulties is that the teachers do not understand the eye so as to teach its proper use, and while it might be thought that the eye itself would be a sufficient monitor, this is not so, as eyes are habitually used after they are tired. The matter of lighting schools was thoroughly discussed, and the following conclusions were drawn:

1. The child should be trained in the use of the eyes.

2. The supervision of the work in the schoolroom, as to the manner in which children use their eyes, should be constant.

3. More care is needed in lighting schoolrooms.

Dr. R. H. Lewis, of Raleigh, N. C., said that one great trouble was that the child was permitted to stoop over in writing. The vertical system of writing makes it impossible for the child to assume a wrong position.

Dr. J. M. Watson, of Elizabeth, N. J., laid stress on the fact that nature must be aided in this matter as in all things. A man walking on the street of a city gradually learns to see many things at once without appearing to see anything. The child should be trained to see many objects at once, but not too many.

Dr. Henry D. Holton, of Brattleboro, Vt., called attention to the danger of the constant change in the focus of the eye of the child in school, looking from the blackboard to the book and back again frequently.

Dr. A. G. Young, of Augusta, Maine, said that it was more trying to read from the blackboard than from a book, because the range of vision was usually less, the figures were not so plain, and the light was often bad. He thought there should be great care exercised in this matter.

Dr. S. H. Durgin, of Boston, thought there should be an inspection of children in all schools to ascertain their ocular powers. Teachers should learn the peculiar characteristics of each child and always consider them.

Dr. H. M. Bracken, of Minneapolis, expressed the belief that teachers should be taught enough to discover faults in the eyes of pupils and know which should be sent to an oculist for further examination.

Dr. James A. Stewart, of Baltimore, suggested the use of a blueboard instead of a black one, to which Dr. Jackson replied that the color was of less importance than the reflection of the board. If a board that was dead black, with no gloss, could be secured it would not, he thought, injure the eyes. The system in use of examining the eyes of railroad-employes might be introduced with good effect into the public schools.

Dr. C. L. Wilbur, of Lansing, Michigan, presented a paper entitled

THE OUTLOOK FOR A GENERAL SYSTEM OF REGISTRATION OF VITAL STATISTICS IN THE UNITED STATES.

He quoted a prophecy made at the first meeting of the Association by Dr. Elisha Harris, who thought at that time that the United States would have a perfect interstate system of vital statistics before the end of the century, and showed why this prophetic vision had not been realized.

Most of the paper was devoted to a consideration of the death-rates according to registration returns, with tables of figures. The State systems of registration of deaths are either fairly perfect or the reverse. The returns in the latter case range from 10 to 80 per cent. of the total number of deaths. A large diagram was exhibited showing the rates per one thousand from the year 1880 to 1893. None of the States having the registration system has abandoned it, and New York, New Hampshire, and Maine have adopted it. Municipal vital statistics are much more complete than those of States. The discouraging features are that the States having defective systems have not improved them. European countries and some New England States, especially Massachusetts and Rhode Island, have very thorough and satisfactory systems. Maine has shown commendable care in compiling her mortality tables, but the United States, as a whole, is far below the density of population at which a perfect and successful registration may be looked for. In most of the cities of over 8000 inhabitants the vital statistics are tolerably reliable. The system put in operation by the United States Bureau will undoubtedly be of great assistance. In case of the establishment of a Bureau of Public Health, the collection of vital statistics would be one of its chief functions.

(To be continued.)

# CORRESPONDENCE.

## PEDICLE-LIGATION IN ABDOMINAL SURGERY.

*To the Editor of* The Medical News,

Sir: Mr. Lawson Tait has seen fit to criticise in the *Medical Press and Circular* of July 3, 1895, my article entitled, "A New Method of Pedicle-ligation in Abdominal Surgery," published in The Medical News of January 12th last. I feel constrained to take exception to some of the statements made in this criticism.

Mr. Tait refers to my article as one "in which a series of mistakes likely to be mischievous are perpetrated;" but he fails to point out what these mistakes are. He states that "in giving four sources of danger from intermediary hemorrhage he [I] might have left them all out but the fourth—'a defective method of application.'"

"A defective method," as a source of danger, means absolutely nothing. A practitioner can gain no knowledge from such a statement. It is *detail* that he desires, the *specific points* in "a defective method." The question is, wherein lies the defect?

This point in my contribution was elaborated, and bore upon the weakness of the methods usually employed in this country and abroad, including the "Stafford." It was totally independent of the points which preceded it.

In this connection I wish to add that, as a matter of fact and to my certain knowledge, a young woman lost her life from the non-observance of caution against one of the three sources of danger declared by my criticiser

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to be of no moment. But when Mr. Tait says that "if *any* knot slips it is the surgeon's fault, and not that of the knot," he falls short of the truth, for the so-called "granny"-knot will often slip when pressure is brought to bear upon it, no matter how snugly it may have been tied, whereas the reef-knot will grow tighter as the strain comes.

If the "Stafford" method is the one described in the text-books and dictionaries, and the one I have seen applied by operators, it is absurd to state that traction will produce as much compression upon its secondary loops as it will upon the primary loops, as described in the method about which I wrote. Compression produced in direct line with the traction-force must surely be greater than that produced at right-angles to the same.

My criticiser also states that in peripheral fixation I propound an "extraordinary dogma;" but adds a little further on that "peripheral fixation is not alone what is wanted in the broad ligament ligation." In this remark he admits that peripheral fixation is, after all, an important factor in this work, and if he had taken pains to read my paper carefully he would have seen that I recommended as many points of intraperipheral fixation, in addition to the purely peripheral, as the operator may deem necessary.

The idea of peripheral fixation seems to exert a rather peculiar influence upon Mr. Tait's mind, for while admitting it to be possessed of value, he at the same time attempts to ridicule it. According to his humor, this principle may, for centuries past, have effectually put an end to the rogues of Staffordshire; but when employed in connection with as much central support as is necessitated by the width of a pedicle, and applied with the precautions enumerated in my article, it will as effectually avert intermediary pedicle-hemorrhage for centuries to come. Respectfully,

SCHUYLER C. GRAVES.

GRAND RAPIDS, MICH.

## ANESTHESIA WITH CHLOROFORM AND OXYGEN.

*To the Editor of* THE MEDICAL NEWS,

SIR: I wish to ask if any of your readers can give me any information concerning the employment of a combination of chloroform and oxygen for the induction of general anesthesia. I have a recollection of having read somewhere of such a procedure, but am unable to find the reference. Respectfully,

EDMOND SOUCHON.

135 BARONNE ST., NEW ORLEANS, LA.

## MENSTRUAL MANIFESTATIONS.

*To the Editor of* THE MEDICAL NEWS,

SIR: I wish to collect data upon symptoms presenting themselves just before, during, or just after the menstrual period, such as mammary swelling or pain; cutaneous eruptions or markings; enlargement of lymphatic glands; abscesses; mental irritability or perversions of temper; offensive breath; recrudescence of old inflammatory areas; in short, any of the phenomena exhibited near or at the time of menstruation, and which recur with reasonable regularity at that period and seem to be related to it.

Many interesting facts must have been noted by intelligent observers bearing upon this matter, and if those who are so disposed will kindly forward to me a short account of the cases they have seen, I shall be deeply indebted to them, and will duly acknowledge my sense of their courtesy.

HARRIS A. SLOCUM.

1427 WALNUT ST., PHILA.

# NEWS ITEMS.

***A Pathology Journal-club*** has been organized by the junior students of the medical department, University of Wooster, at Cleveland. The club is composed of students who have taken a full course of instruction in bacteriology and who are about to enter upon the study of pathology. The chief object of the organization is to familiarize the students with the methods of scientific literary research by bringing them in contact with current literature bearing upon pathology and bacteriology. The first meeting of the club was held on the evening of October 3d. Dr. Ohlmacher exhibited specimens from an autopsy made that day upon an old case of appendicitis, in which the most important lesion was a very extensive thrombophlebitis of the portal vein. The club elected Dr. Ohlmacher as its president and Mr. A. L. Smith secretary. The meetings are to be held biweekly.

***Prof. Bardeleben***, the distinguished German surgeon, died at Berlin on September 24th, at the age of seventy-six years. He was the author of a *Lehrbuch der Chirurgie und Operationslehre*.

***Johns Hopkins University.***—Dr. W. W. Russell has been appointed Associate in Gynecology and Dr. Thomas S. Cullen Instructor in Gynecological Pathology in the Johns Hopkins University, Baltimore.

***Dr. James Collins***, a well-known Philadelphia physician, who served with loyalty during the War of the Rebellion, died on October 7th, at the age of sixty-five years.

### BOOKS AND PAMPHLETS RECEIVED.

Blepharoplastics. By Peter D. Keyser, M.D. Reprinted from Wills Hospital Reports, 1895.

La Méthode Brown-Séquard Traité d'Histothérapie. La Thérapeutique des Tissus Compendium des Médications par les Extraits d'Organes Animaux. Par le Dr. M. Bra. Ouvrage précédé de lettres et Préfaces de MM. Les Professeurs Constantin Paul, Mendel, Ewald, Bruns, Emminghaus, et Byrom Bramwell. Accompagne de 72 gravures. Paris: J. Rothschild, 1895.

Semi-centennial Proceedings of the American Medico-Psychological Association, at the Fiftieth Annual Meeting, held in Philadelphia, May 15–18, 1894. Published by the American Medico-Psychological Association. Utica, N. Y., 1895.

Il Sublimato Corrosivo per Iniezione Endovenosa Nella Teralia Oculare. Per il dott. M. A. Dagnino. Estratto. Antica casa Editrice Dottor Francesco Vallardi. Milano.

A Rapid Method of Making Permanent Specimens from Frozen Sections by the Use of Formalin. By Thomas S. Cullen, M.B. Reprinted from the Johns Hopkins Hospital Bulletin, 1895.

Transactions of the American Association of Obstetricians and Gynecologists. Vol. VII. For the Year 1894. Philadelphia: William J. Dornan, Printer, 1895.

Case of Double Pyosalpinx. By Hunter Robb, M.D. Reprinted from the Western Reserve Medical Journal, 1895.

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# THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXVII. SATURDAY, OCTOBER 19, 1895. No. 16.

## ORIGINAL ARTICLES.

### *SEPTIC PERITONITIS.*

BY LOUIS FRANK, M.D.,
OF LOUISVILLE, KY.;
ASSOCIATE PROFESSOR OF OBSTETRICS AND DIRECTOR IN THE BACTERIOLOGICAL LABORATORY IN THE KENTUCKY SCHOOL OF MEDICINE; GYNECOLOGIST TO THE LOUISVILLE CITY HOSPITAL AND THE KENTUCKY SCHOOL OF MEDICINE HOSPITAL, ETC.

ALTHOUGH the gonococcus was not discovered by Neisser until 1879, still in 1872 Noeggerath pointed out upon clinical grounds a close etiologic relation between inflammatory conditions of the female pelvic organs and gonorrhea. In 1886 Westermark, by means of the microscope, first discovered the gonococcus in a case of pyosalpinx. Since then numerous observers have demonstrated the presence of this organism in salpingitis, among them Orthmann, in one of eight cases; Schmitt, in one case; Steman, in one case; Menge, in three of twenty-six cases; Zweifel, in eight of forty-four cases; Reichel, in one case; Döderlein, in one case; Wertheim, in nine of twenty-four cases. In addition, Wertheim has been able to cultivate it in seven cases and Menge in one. In all about one-hundred-and-eight cases have been recorded in the literature that have been examined for the presence of gonococci, either by the microscope or by cultures, and in thirty-four cases, or in 31 per cent., this organism has been found. Sixty-one of the cases were sterile, or free from bacteria, and in but eleven of the one-hundred-and-six were other bacteria than gonococci present.[1]

Wright has by cultures demonstrated the presence of the gonococcus in about 20 per cent. of cases, giving the pathologic condition found and the results of bacteriologic examinations in those cases in which these were positive.

In my own experience of ten cases operated upon for pus-tubes in which bacteriologic examinations were made, I have demonstrated the presence of the gonococcus in only one. Of these ten cases, as ascertained by the clinical history previous to operation, two were undoubtedly due to puerperal infection. In these two no micro-organisms whatsoever were found. Three cases were due to chancroidal infection, the chancroid existing previous to the operation and previous to the occurrence of the pelvic lesion; in two of these cases the development of the pelvic trouble was observed from the beginning. Examination of the tubes in these three cases showed the presence of the streptococcus pyogenes aureus, which was in one found both in cover-slip preparations and by cultivation. One case showed the presence of an organism resembling in morphologic appearance and in staining reaction the diplococcus of pneumonia. Unfortunately, no cultures were made in the second case. One case showed no organisms whatsoever either in cover-slip preparations or by cultivation. In the other five cases, due to gonorrheal infection, as shown by the clinical history, organisms were found in only one. These were demonstrated by microscopic examination, but not by culture-methods. They presented the characteristic appearance and characteristic staining, decolorizing by Gram's method. All of these cases recovered without trouble, although in two there was at the time of enucleation an escape of pus into the peritoneal cavity. As I have said, all the cases recovered. There were no fistulæ, nor was any trouble whatsoever observed during convalescence.

It has been generally believed that the presence of gonococci in pus-tubes meant that the pus was of a low grade of virulence, and that its escape into the peritoneal cavity did not necessarily mean that the patient would not get well. Those operators who have found the gonococcus present, and the gonococcus alone, without mixed infection with the staphylococcus or streptococcus, have regarded the case as free from all danger of infection whatsoever. Even when the pus containing this one organism had escaped into the peritoneal cavity, no drainage has been employed and no extra precautions taken to prevent infection.

In many cases the bacteria that have been present in pus-tubes at the time of infection of these tubes have died out, and it has been the rule that in those cases in which there was much pus there were few or no organisms, and when these were present they were of low vitality; the most virulent, and those that gave the most trouble being found in tubes in which there was very little pus, and in which the infection was more recent. This is no doubt due to the fact that the organisms themselves generate a poison that is inimical to their existence.

In the cases that I have examined microscopically the pus observed has contained a good deal of detritus and many broken-up cells, the cells that

[1] Wright: The American Journal of the Medical Sciences, February, 1895, vol. cix, p. 118, No. 2.

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were stained not showing the sharpness of outline that we find in recent suppurative processes. On the contrary, when the pus has been scant in quantity the pus-cells have been well-defined, and in these organisms were found, except in the one case in which the gonococcus was discovered, and in which there was quite a large collection of pus that had existed for some time.

I believe that the gonococcus in its virulent state, before it has been for any length of time in the pus of a pyosalpinx, is perfectly capable of infecting the peritoneum, and will, if opportunity is afforded, produce the most virulent peritonitis—peritonitis that leads to rapid death, with marked symptoms of profound septic infection. I have recently had an opportunity of observing such a case, and while this case was operated upon by another surgeon, it fell to my lot as curator to perform the autopsy and to make the bacteriologic examinaton. In this case gonococci were found free in the peritoneal cavity. It will not be amiss, with all due deference to the surgeon, a most capable and efficient gentleman, one for whom I have the highest regard, to relate the case so far as it came under my observation in the autopsy-room, giving in addition a short history:

The patient was a prostitute, about seventeen years of age, who was admitted to the hospital in April, 1895. She was in the habit of having intercourse during the menstrual period, and to prevent detection by those men with whom she copulated she was in the habit of introducing a tampon into the vagina. Three weeks before her entrance into the hospital she had contracted gonorrhea. About two weeks afterward her menstrual flow came on, and as usual she placed a sponge in the vagina to absorb the bloody discharge, as she had done on previous occasions. The sponge was removed three days later, and she then stated that the odor was exceedingly offensive. She had before removal of the tampon begun to experience some abdominal pain, which increased very much in severity a day or two later, after which time she felt some chilliness, and on the next day distinct chills, headache, constipation, etc. She then came into the hospital, when a diagnosis of double pyosalpinx was made, and six days afterward, that is, on the 23d of April, she submitted to an abdominal section. During this period the temperature had ranged from 100° to 102° F.; at no time was the temperature normal, while the pulse-rate was from 90 to 120.

The right tube was removed without much trouble. A small quantity of pus that was in the left broad ligament escaped into the abdominal cavity. The tissues on the left side were exceedingly friable. The first ligature applied to the stump cut through, as did the second, the third being placed well on the fundus of the uterus. After irrigation a drainage-tube was inserted and the abdomen closed. Within twenty-four hours septic peritonitis developed. On the second day the drainage-tube was removed and an enema given, and the bowels moved as a result. On the third day there were nausea, vomiting, and delirium most violent in character, death closing the scene late on the same afternoon, just seventy-two hours after the operation.

The autopsy had to be made rather hurriedly. There was union between the abdominal muscles and the peritoneum at the point of incision. About a pint of pus had collected in the pelvis. The ligatures had held, and the stumps were covered by adherent greater omentum. The entire peritoneum was violently inflamed, the process being most severe in the pelvis. Besides being swollen and softened, the intestinal peritoneum presented numerous small ecchymoses. There was no marked change in any other abdominal organ. The intestines were agglutinated, with some pus between them here and there in the cavity.

After having studied this case carefully from its clinical aspect, I came to the conclusion, as already stated, that the gonococcus, when it directly infects the peritoneal cavity in a virulent form, is capable of producing peritonitis most septic in character. Working upon this line I addressed a letter to a number of prominent surgeons throughout the country embodying the following questions: Had they ever found the gonococcus in septic peritonitis; if so, had it also been found in the genital tract? Had recovery from peritonitis followed? How soon after infection had symptoms first manifested themselves? Were other organisms besides the gonococcus found intraperitoneally? A number of the gentlemen to whom letters were addressed had done no work in this line whatsoever; in fact, had done no pathologic work bearing upon the subjects named. Others stated that while they had found the gonococcous in pus-tubes they never felt any alarm at its presence. One or two of these letters I should like to quote in full as giving the opinions of some of the best men in this country.

Dr. Howard A. Kelly, of Baltimore, wrote that he had made no experimental studies whatever, but his experience had been that the gonococcus is but rarely found either in pus-tubes or in the peritoneum. He further says:

"I have found it in suppurative peritonitis in two cases in which there was a recent rupture. The peritonitis had become general; the intestines were agglutinated in all directions, and there was much free pus. The patients were extremely prostrated, with a rapid pulse. The effect, however, upon the system at large was by no means that of staphylococcous or streptococcous infection. In all my culture-work and cover-slip work with pus-tubes I have not found the gonococcus more than half a dozen times. I look upon these cases as peculiarly favorable, and never think of drainage because of the contamination of the peritoneum with gonococcal pus during an enucleation, as my experience has been that the organism has a very low grade of vitality in the peritoneum."

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Dr. Roswell Park, of Buffalo, wrote:

"It has not yet happened to me to find a pure form of gonococcous infection in any case of septic peritonitis. This answer will dispose of your second, third, and fourth questions. In answer to your fifth, I would say that in every instance in which I have found the gonococcus in connection with septic disturbances other organisms have been present.

. . . . . .

"I have not yet seen convincing reason to believe that the gonococcus by itself is anything more than possibly a facultative pyogenic organism, and I certainly am of the opinion that it does not always produce pus."

Dr. Park also kindly referred to the following statements:

"Challan, quoted in the *Gazette di Torini* (1893, No. 40, p. 792), has reported a case of gonorrhea, at first uncomplicated, followed after eight days by fatal suppurative peritonitis, in which only the gonococcus could be found. Mermet (*Annales des Maladies des Organes Genito-Urinaires*, 1893, September, p. 695) has also reported a similar case, which recovered. In this case the disease followed a funiculitis, and seemed to have been the product of a direct extension. Baumgarten claimed that such cases are not rare, and that within two months previously he had seen two similar extensive cases which speedily recovered."

Dr. M. H. Richardson, of Boston, observed some years ago a case of septic fulminating peritonitis following gonorrhea:

"There was enlargement of a lymph-gland in the left side of the pelvis just above Poupart's ligament. The gland was broken down, and contained pus. There was general peritonitis, with all its symptoms. An operation was done, but it did no good, the patient dying in a short time."

Dr. William T. Lusk of New York, has reported two cases dying of peritonitis from rupture of pus-tubes, presumably of gonorrheal origin, at the time of labor, but states that unfortunately no special search was made for gonococci.

Dr. Christian Fenger, of Chicago, wrote that he has never found the gonococcus in peritonitis.

Dr. A. Vander Veer, of Albany, has found the gonococcus in cases of pyosalpinx, with pelvic peritonitis, but, at the same time, has considered these ordinary cases, as recovery has followed, with a very small percentage of mortality.

Dr. Hunter Robb, of Cleveland, has never been fully satisfied that the gonococcus was present in any case of septic peritonitis that he has examined, and has not been able to demonstrate its presence in any culture he has made from septic fluids. In most of the cases he has examined microscopically, and often by cultures, all showed the presence of mixed infection. In those cases of ovarian abscess and pyosalpinx in which pus was found, he seldom, if ever, obtained any organisms that would grow on any media that he had.

Dr. C. B. Penrose, of Philadelphia, believes, as a result of his own experience, that the gonococcus alone in an uninjured peritoneum is probably harmless. He fears only the streptococcus, the bacillus coli communis, and the staphylococcus.

These letters will be sufficient as showing the opinion of the medical profession of to-day. With this my own opinion has been in accord, but from the case just reported, with the result that has been given, we must conclude that the gonococcus is capable of producing the most septic form of peritonitis. In this case, as Dr. Howard A. Kelly, in his letter says of similar cases, there was the greatest prostration. The infection became evident almost from the start. The pulse was very rapid, and there was a most decided impression upon the whole system of the patient. In this case, although most careful search was made by culture and otherwise, no other organisms were found. The organisms found were examined by various methods of staining, and shown positively to be gonococci.

Following out this line of work, I have been making some experiments upon animals to demonstrate if possible more clearly than has heretofore been done the relation that the gonococcus really bears in the production of septic peritonitis. I believe, as stated, that it may, in a virulent condition, when infected directly into the peritoneum when this is not in the best condition for resisting infection, be capable of producing a great deal of trouble; and I believe that when I have concluded my experiments, which will be duly published in full, I shall be able to positively demonstrate this fact. I am not, however, absolutely sure of this, and recognize the fact that a single case is hardly sufficient upon which to base any rule, or to enable us to lay down any definite law with regard to this matter. Still, if the gonococcus is capable, under any conditions whatsoever, of producing a lesion in the peritoneum sufficient to cause death, then we must guard against any possible source of infection by this means. If the organism is present we must not be content to close up the peritoneum without drainage, but we should employ the same means to thoroughly cleanse the abdominal cavity as we would when the streptococcus or the staphylococcus is found. These latter organisms are undoubtedly the cause of the greatest number of cases of septic peritonitis that we see; nevertheless the other as an etiologic factor must not be overlooked.

In conclusion, I desire to express my sincere thanks to Dr. John Cashin, of the Resident Staff of the City Hospital, for his valuable assistance not only in performing the autopsy and bacteriologic research in the case cited, but for his excellent microscopic examinations of several other pus-tubes removed and included in the ten cases mentioned.

419 W. CHESTNUT STREET.

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## GENERAL ERYSIPELAS OCCURRING DURING THE PUERPERIUM, FOLLOWED BY POPLITEAL THROMBOSIS AND GANGRENE.

BY LLOYD M. BERGEN, M.D.,
OF HIGHLAND PARK, ILL.

THE following case in private practice presents several rare and interesting features. The points that are worthy of special consideration are perhaps not so much the successive individual complications as their association and the determination of etiologic relationship between them:

Mrs. C., aged thirty-four, a tertipara, of Irish parentage, menstruated at fourteen. Her general health had always been considered perfect. She had never been ill in her life, except during her confinements. Her weight was one-hundred-and-eighty pounds, and her temperament phlegmatic. Her first labor occurred in October, 1892, when I saw her in consultation with Drs. Haskin and Haven. After a prolonged and exhausting labor of forty-eight hours she was delivered of a large, dead child. The presentation was normal. The cervix was very rigid, and as the amniotic fluid had escaped twelve hours previously, artificial dilatation was required before forceps could be applied. The third stage was rapid and easy; hemorrhage was moderate. A slight perineal laceration occurred, which was repaired. Recovery was tedious, but I believe uneventful.

On October 17, 1893, I attended the patient in her second labor. Owing to the extreme thickness of the abdominal walls, and the immense amount of amniotic fluid, no presentation could be determined until the end of the first stage, when a very large child presented by the breech. Dr. Haskin, my colleague, was summoned in consultation. Dilatation being complete, we waited an hour, when, as the breech showed no tendency to engage, the patient was anesthetized, and a dead child, weighing twelve pounds, delivered. The death of the infant was undoubtedly due to delay in delivering the after-coming head, which offered the most annoying resistance to all efforts at extraction. The mother's recovery was perfectly normal.

On October 15, 1894, I was again summoned to attend the woman in confinement. The first stage lasted about eleven hours. At its conclusion I determined upon immediate artificial delivery. This decision was based upon the patient's extreme desire to give birth to a living child, and also upon the fact that previous experience with her led me to hope for nothing were the case left to the natural forces.

Dr. Haskin was again summoned, and the patient anesthetized. With moderate difficulty I delivered her of a large living child. The head lay extremely high above and anterior to the symphysis pubis; yet, despite the fact that the child was the largest she had ever borne, the delivery was accomplished with greater ease than in either of her previous labors. I attributed this fact to the early interference while the mother's tissues were still relaxed and moist, and the contractions vigorous.

I may here add that the whole labor was conducted upon strictly surgical principles. Great pains were taken to insure perfect asepsis of the patient, instrument, and operator. The placenta was slightly lacerated in delivery, but came away intact. The uterus contracted firmly.

Convalescence proceeded without interruption until the eighth day, when the nurse called my attention to a small papule at the angle of the nose. The lesion, which had existed for several days, but attracted no attention, now presented about its base an angry appearance, very suggestive of erysipelas. The vulva was immediately sealed with mercuric-chlorid gauze compresses, which were renewed only when absolutely required, and with the utmost care and rapidity.

At the end of forty-eight hours the eruption quite covered the face, and, after a short delay, during which time the cervical and submaxillary glands became enormously enlarged, crept along the post-cervical region, and extended down the spine. The spreading of the eruption was from this time on uninterrupted. The entire surface of the body as far as the thighs became involved. The vulval and anal regions escaped. Various local measures were adopted in succession, but all finally discarded in favor of an ointment containing equal parts of ichthyol, lanolin, and water. Internally quinin, stimulants, and at times iron, with a diet of milk and raw eggs, were principally administered. The patient's temperature ranged irregularly from normal to 104°. The eruption remained about fourteen days.

On November 7th, after the patient's temperature had remained normal for twenty-four hours, and convalescence was apparently established, she was seized with violent pain in the region of the heart, which I attributed to neuralgia, but for the control of which I was forced to resort to a hypodermic injection of morphin. About three hours subsequent to this attack the woman was seized with severe pain of a similar character in the right foot. The most painstaking examination of the foot and leg revealed absolutely nothing abnormal. There was no edema or induration along any of the lines of bloodvessels or lymphatics.

On the following morning the pain was a trifle less severe, but still present. Upon this examination I detected decided coldness of the affected member, and upon further examination found an entire absence of pulsation in both tibial arteries. There was complete anesthesia of the entire foot. During the following hours there developed a marked ecchymosis of the surface, extending over the foot and the lower third of the leg.

From this time on to the date when amputation became necessary the local condition was one of progressive decomposition. The patient's general condition, however, remained good. The temperature ranged from 99° to 100°. Two days prior to the operation it rose to 103.5°, but almost immediately fell again.

On November 20th it was deemed advisable, on

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account of the unfavorable surroundings, to remove the patient to St. Luke's Hospital for the operation. The following day Dr. Owens amputated the limb about six inches above the knee. The proximal end of the femoral artery was found to be occluded by a clot for a distance of three inches. This was cleaned out, and the operation completed. Below the line of amputation and surrounding the original point of thrombosis was found a large abscess.

The patient's recovery was tedious, but perfect.

In this case it is manifest that infection could not have occurred through the genital organs, as there was throughout the entire course of the disease no evidence whatever of morbid disturbance in this region. Involution was practically uninterrupted. The lochia were normal in all respects, disappearing entirely on the fifteenth day. There could be elicited no unnatural tenderness of the uterus or any of its appendages throughout the whole puerperal period.

The cutaneous erysipelas must, therefore, be looked upon as entirely independent of the puerperal state, and the fact of its accidental appearance at this particular time renders the case one of more than ordinary interest, both from an obstetric and a pathologic point of view.

Laying aside the question of etiologic relationship, we find a great deal of interest attached to the question as to what modifications of the disease were induced by the puerperal state, and whether the rapid and extensive spreading of the eruption, together with the grave complications following, were not largely favored, at least, by general systemic conditions incidental to the lying-in period.

In puerperal convalescence, even when the transition is perfectly performed, the organs of elimination are taxed almost to their physiologic limit; the restoration of contused and edematous tissues to the normal state, and the awakening to activity of the lacteal glands, all combine to load the eliminating channels with a tremendous amount of waste material, thereby calling upon the excretory organs for a greatly increased activity. Here we must also remember that these same organs have, in a majority of cases, become more or less disturbed during the later months of pregnancy.

When superadded to such a condition we have an invasion of the system at any point by pathogenic micro-organisms, we cannot be surprised that the toxic products of their activities should remain in the lymphatic vessels and spaces, acting detrimentally upon the uninvaded tissues, and diminishing greatly their power of physiologic resistance. Specific germs of any variety find in this effete material an inviting culture-soil in which to thrive and increase in activity.

Again, going beyond the puerperal period, we may possibly look for other factors favoring the complications which followed the erysipelas. We know that during the later months of pregnancy, as well as during the puerperium, the blood undergoes certain alterations that render it prone to coagulation.

Tarnier in 1878 referred to the discoveries of Andral and Gavarret regarding the changes undergone by the blood during pregnancy, and emphasized the relative importance of the increase of fibrinous elements in the blood of pregnant women during the last three months—an increase always present and frequently in proportions almost pathologic. Without venturing into a discussion regarding the predisposing and exciting causes of these changes in the blood, it is sufficient here to call attention to the fact that they do occur, and that they exert an influence upon the course of many puerperal diseases.

It would perhaps be more difficult to assert that the "physiologic leukocytosis" of pregnancy first observed by Virchow proves another factor favoring thrombosis. We know that when coagulation occurs in living blood the white corpuscles play an important rôle in the initial process, by reason of their ready attraction and adhesion to portions of the intima that have undergone structural alterations, however slight. Their extremely rapid increase at the end of pregnancy is probably in anticipation of their requirement as carriers of waste-products subsequent to parturition.

This general inopexia in puerperal patients when exhibited in a pathologic degree is occasionally expressed in thrombotic formations within the pulmonary arteries, heart, and venous terminals.

Fordyce Barker[1] reports a case of arterial thrombosis occurring in the left leg, in which there had been no arteritis and no demonstrable cause for the accident. He attributes many sudden deaths during the third and fourth week of puerperal convalescence to occlusion of the pulmonary arteries by emboli.

With this general condition of the blood present, then, we are prepared to appreciate the profound impressions produced upon the circulatory system of parturient women by the invasion of the tissues by acute disease of any nature. The existence of high or prolonged temperature, with its resultant anemia, or influences of any nature that tend to vitiate the blood, would lead us to anticipate some such process as thrombosis, even regardless of the presence of micro-organisms.

A great deal of interest during recent years has centered upon the relationship existing between erysipelas and puerperal fever. Since the time when Fehleisen discovered the streptococcus erysipela-

[1] Puerperal Diseases.

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tosus, bacteriologists have sought by experimental evidence to place these two diseases in their proper etiologic relation.

Gusserow reports the cases of a number of puerperal women who developed cutaneous forms of erysipelas without involvement of the genital organs. He also mentions several cases of puerperal fever complicated by erysipelas at a later stage. These cases, together with his experimental investigations, he considers as strong evidence that erysipelas cannot cause puerperal fever. According to Senn, Doyer and Winckel both determined to their own satisfaction, by means of cultivation and inoculation-experiments, that there does exist a direct relationship between the virus of erysipelas and that of puerperal fever. Doyer maintains the identity of the two bacteria. Senn himself concludes his article with the statement "that puerperal sepsis from infection with the streptococcus of erysipelas can only occur when the streptococcus is brought in direct contact with an absorbing surface in the genital tract."

Senn's deductions might at first glance appear to receive some clinical support from the history of the case herein reported. The inflammation extended almost to the vulva, and yet a protection of the genitals from outside infection appeared to avert the danger; still, while this precaution closed the most important avenue of invasion, we may readily see that independently of infection from this source secondary foci of suppuration might have occurred in the parametric tissues, or even in the uterus itself, giving rise to puerperal sepsis. In other words, the infected embolus might have elected one of the pelvic arteries in place of the popliteal.

The theory of Gusserow and others, that puerperal sepsis, due to the streptococcus of erysipelas, always implies direct contact of the germs with absorbing surfaces of the genital tract, is founded upon almost purely experimental evidence, the most valuable variety of scientific research, but at times misleading. These observers obtained pure and tested cultures of the streptococcus, and injected them into the peritoneal cavities of rabbits, producing no disturbance whatever, the local immunity being confirmed by post-mortem examination. Upon these experiments they base their conclusions. By somewhat similar methods Fehleisen and others claim to have practically demonstrated the non-pyogenic nature of the streptococcus of erysipelas, and that when suppuration does occur during the course of the disease it is due to mixed or secondary infection with pus-microbes. Other equally observing men, after conducting like investigations, have arrived at almost opposite conclusions. Such apparently non-reconcilable results are probably to be accounted for by the existence of physiologic and pathologic variations in the quality and conditions of the tissues in the individual animals employed. Aside from demonstrable morbid changes in tissues there remain certain intrinsic germ-neutralizing and combative elements that defy all attempts at analysis. This "physiologic resistance," as we term it, varies greatly in different normal individuals.

Results obtained by inoculation-experiments are definite and reliable in many instances; but in others they are extremely misleading and open to serious objection unless certain allowances are carefully made in summing up conclusions. I believe that in these experiments too little allowance is often made for the condition of the tissues in which the micro-organisms are found. Inoculation-experiments are usually performed upon animals in normal health, which naturally enjoy an immunity not found in patients from whom the cultures were obtained. Tissues weakened by chronic alcoholism, the cachexias of malignant disease, prolonged disorders of the excretory organs, as well as the zymotic diseases, lose much of their resisting and neutralizing powers when brought in contact with pathogenic micro-organisms; and an inoculation that yields negative results in a healthy animal would oftentimes produce profound impressions upon the tissues of a diseased individual.

An inoculation in the peritoneal cavity of a healthy guinea-pig with the streptococcus of erysipelas might give rise to no serious disturbance, but will anyone maintain that the injection of the same material into the abdomen of a typhoid-fever patient during the fourth week of the disease would result similarly? Could the same exhausting influences affecting the puerperal patient whose case I have related have been applied to the tissues of an animal previous to its inoculation the results would in all probability have been of a very different character.

The experiments of Gusserow, therefore, are wanting in proof regarding the non-transmissibility of erysipelas to the pelvic organs through the circulating fluids of the body in patients already suffering from the disease, and Senn's statement appears to me not sufficiently supported to be accepted without some qualification.

In a like manner, regarding the pyogenic properties of the streptococcus of erysipelas, may we not concede that while pure cultures of these bacteria injected into vigorous normal tissue do not give rise to suppuration, the same germs, introduced into tissues presenting a more favorable culture-soil and less resistance, might develop pyogenic qualities? In many cases of complicated erysipelas the streptococci have been found in abscesses in almost all parts of the body. Their presence there, even in company with other bacteria, should be evidence enough that they are in a measure concerned in the

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destructive processes about them. There is no logical reason why the pelvic organs should escape infection through the medium of septic emboli when such accidents occur in other parts. I regret keenly that in the case herein reported cultures were not obtained from the abscess, and that our conclusions must therefore remain of a purely clinical character.

Endocarditis, more or less pronounced, was probably present in this case, although repeated examination of the heart yielded negative results. Judging from the precordial distress immediately preceding the blocking of the popliteal artery, however, as well as from the history of somewhat similar cases in which autopsies were obtained, we may assume the presence of a septic endocarditis resulting in thrombosis at some point within the left heart or aortic valves.

The transference of bacteria to this region presents another interesting feature, and implies in my judgment the existence of other factors than the mere presence of cutaneous erysipelas. The eruption in this case, while of extensive area, was not of a deep or phlegmonous type. There were no superficial suppurative points discoverable, no sloughing of the surface or overtension of the tissues.

In these less severe varieties of the disease the invading germs are believed to limit their ravages to the lymphatic vessels and perilymphatic spaces, and that only in those graver cases marked by deep infiltration and extensive tissue-destruction do the micro-organisms actually penetrate into the blood-channels. It is at this point that the puerperal state, in conjunction with the preceding weeks of illness, plays an important rôle in favoring invasions beyond the ordinary limit. The overworked secretory organs fail in elimination; the lymphatic vessels and the surrounding spaces are choked with swarms of active germs, and the debilitated tissues offer but feeble resistance to their advances. Conveyed in the substance of leukocytes or in free colonies circulating in the liquid portion of the blood, the streptococci select the surface of the endocardium as the site for mural implantation at some point probably roughened by previous disease. Their passage through the pulmonary tissues, without producing destructive changes, remains a remarkable fact.

From a clinical point of view the case that I have reported is of extreme interest to the obstetrician. It should remind us that unexpected accidents frequently occur in the midst of an apparently normal convalescence, and that the intercurrence of any disorder during the puerperium should be regarded with gravity and the prognosis be guarded; and we are also reminded that all complications of the lying-in state do not originate within the pelvic organs. While an ardent advocate of extreme aseptic precautions in all cases, I must aver that such attentions are often bestowed at the expense of the patient in other ways. The obstetrician must note carefully every condition of the pelvic viscera, but in the meantime must not forget the patient. I am also impressed with the well-known fact that while an ideal puerperal condition constitutes in reality a physiologic process, it certainly prepares the way most admirably for pathologic sequences.



## CLINICAL MEMORANDA.

### COMPLETE PROLAPSE OF THE UTERUS, WITH INCOMPLETE ABORTION, IN A GIRL SIXTEEN YEARS OLD.

BY J. MASON HUNDLEY, M.D.,
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ASSOCIATE PROFESSOR OF DISEASES OF WOMEN AND CHILDREN IN THE UNIVERSITY OF MARYLAND.

I REPORT the case herewith detailed believing it to have some points of general interest. In an experience of eight years in dispensary-work, with a large amount of clinical material at my command, I have never seen a similar condition in one so young.

Ellen S., a colored girl, sixteen years of age, presented herself at the University of Maryland Dispensary, with the following history: She had always menstruated regularly and had been in good health up to a few days before her visit to the dispensary, on January 3, 1895, when she was seized with pain in the lower abdomen and difficulty in urinating. She was also obstinately constipated. An examination was not made at this time, but the patient was given a mixture of magnesium sulphate and compound tincture of gentian for the constipation. This combination, we have found, often relieves pelvic pain when dependent upon constipation, which is not infrequent. The girl returned in a few days, unimproved, and was again given the same solution. Upon her third visit, still not being relieved, she was examined. I was more than surprised to find a procidented uterus, and one presenting an appearance unlike anything I had ever seen before. The uterus protruded from the mouth of the vagina about three inches, and there was a rolling out of the mucous membrane of the cervical canal.

I first thought there was a chancroid of the cervix, but upon closer inspection I found the appearance to be due to the greatly thickened mucous coat of the cervical canal. I now questioned the girl more closely and she positively denied having missed her sickness. She maintained that she had had no bleeding from the uterus, that she had always been well up to a few days before presenting herself at the dispensary. The cervical canal easily allowed the introduction of an aseptic finger, which I introduced within the uterus and brought away nearly a handful of fetal remains, but no fetus. The pregnancy could not have been far advanced, for there was no well-formed placenta. There was no evidence of blood about the person of the girl, nor had there been any blood coming from the cervix before the extraction of the secundines; only issuing from the cervix drop by drop was a watery fluid. There was no

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laceration or marked relaxation of the perineum. The cavity of the uterus measured four-and-a-half inches in length. After being thoroughly curetted with the finger the uterus was replaced and put in its normal position, where it remained. The girl was given fluid extract of ergot to assist in the process of involution, and told to go home and go to bed, where she was looked after until the uterus had nearly regained its normal size. Douches of hot water with borax were given in conjunction with the ergot, and the patient was not allowed to become constipated.

There are some points of interest in connection with this case. First, through ignorance or design, the histories obtained from the class of patients visiting dispensaries have often no bearing whatever upon the case in hand, and, therefore, it is always best to make a physical examination in each and every case, unless there be clear contraindications. The second interesting point in the case is a procidented recently pregnant uterus in a girl sixteen years of age who had never borne a child to full term. There was no evidence that she had given birth to a child, no striæ upon the abdominal walls and no evidence about the outlet of the birth-canal. The procidentia seemed to be of recent origin—whether it was brought about by the girl herself, or someone else pulling upon the vagina or uterus, thereby hoping to effect an abortion, I am unable to say—I could get only the meager history related. Another point brought out by this case is the curettement of the uterus with the finger. I do not think one can emphasize too strongly the great advantage this method has over that with the ordinary curet. With the finger one can appreciate what is to be done and where to do it. One knows when the uterus is thoroughly emptied of its contents, and, however soft and yielding its walls may be, there is no danger of going through them, as is now and then done, even in the hands of the best operators. I once had the misfortune of pushing a curet through the uterine wall, and since then I never use a curet without first introducing my finger within the uterine cavity to find out the true condition of things. If there be simply vegetations to be gotten away I may use the curet; otherwise I use the finger.

## TRAUMATIC NEURITIS FOLLOWING FORCEPS-DELIVERY.

BY J. C. WELCH, M.D.,
OF BELLEVUE, PA.

THE following case came under my observation while a resident physician at the Philadelphia Hospital, and is reported as an infrequent complication of the puerperium.

M. F., 20, white, Irish, a primipara, was of good family and personal history, so far as could be ascertained, with the exception that the mother died in childbirth. The fact is interesting in connection with the pelvic measurements of the patient; these were:

| | Cm. |
|---|---|
| Iliac spines | 24 |
| Iliac crests | 26 |
| External conjugate | 20 |
| Right diagonal | 19½ |
| Left diagonal | 19½ |
| Between trochanters | 29½ |
| Circumference of pelvis | 88 |

The position of the fetus was the first position of the vertex. At 3 A.M. the patient fell into labor; the pains were regular and quite severe. At the end of 36 hours the os was well dilated, the membranes had ruptured, and the patient was quite exhausted. It was evident that the termination would not be a favorable one without interference. Forceps was applied at the superior strait and the head was brought down to the perineum without difficulty, but could be not delivered. After successive attempts at delivery with forceps it was finally accomplished after rotating the head considerably. The perineum was badly torn and there was a double laceration of the cervix on either side, extending into the vaginal vaults. The child was asphyxiated, but was resuscitated in the usual manner, and seemed to be doing well, but died suddenly about seven hours after its delivery.

After delivery the patient suffered greatly with pain in the back and particularly in the lower extremities, chiefly in the lumbar region and in the posterior portion of the limbs, and this was so severe as to prevent sleep. The external genitals became much swollen and on the third day the temperature rose to 101.4°, but these symptoms did not continue.

The pains gradually lessened in intensity and at the end of 2 weeks had disappeared from the right limb; at the end of 7 weeks she left her bed and was able to walk with difficulty. A vaginal examination at this time revealed no swelling or induration or the lumbosacral plexus, but there was exquisite tenderness on the left side. There was marked tenderness on pressure along the course of the sciatic nerve of the left limb, particularly at its emergence from the pelvis. There was also soreness of the muscles of the entire posterior surface of the limb, more intense between the great trochanter and the tuberosity of the ischium and gradually diminishing toward the heel. The patient stated that she had a dull aching pain, constantly present from the lumbar region along the posterior portion of the limb to the heel, and at times suffered with short paroxysms of a sharp, darting pain here. These paroxysms occurred at night when asleep as well as when the limb was being exercised.

The case remained under observation for 2 months, and during this time showed great improvement. The lameness disappeared, the pain became less acute, and the paroxysms very infrequent.

## EPILEPTIFORM CONVULSIONS OF MALARIAL ORIGIN.

BY E. W. LUDLOW, M.D.,
OF URBANA, O.

F. S., aged seventeen years, gave no history of epilepsy in the family or of attacks previously. In August, 1894, the patient was seized with sudden pain in the head and neck, and then became unconscious and so remained for about two hours. After the attack, which occurred in the afternoon, the lad was stupid and drowsy, and slept during the ensuing night. The next day he had mild convulsions at intervals of a few hours, the headache continuing. This condition kept up for about two weeks. During the fall and winter of 1894 the young man had chills and fever, with fits at irregular periods. About the first of January, 1895, his con-

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vulsions occurred every other day, always in the afternoon between four and five o'clock. The fits were severe, and he would not be able to resume work until the next day. During this time, from the beginning of the fits until January 1st, the patient was away from home working, and his condition, except for the fits, was good. I saw him first on his return, January 4th, and he had just had a fit. I could not get a satisfactory history, and lost sight of the case until June 25, 1895, when I obtained the history given. The lad had been having fits at regular intervals for over six months since I had seen him. The indications were that the cause of the convulsions was malaria, and quinin was given so as to anticipate the next seizure—which never came. Anti-malarial treatment was continued for about two weeks, when the patient disappeared. He turned up about September 1st, and reported that he had had no more fits. Quinin sulphate was used in fairly large doses, and had not the least ill effect.

## MEDICAL PROGRESS.

***The Pulse of Mitral Stenosis.***—As the result of an elaborate study, Steel (*Medical Chronicle*, September, 1895, No. 6, p. 409) sums up as follows his views upon the character of the pulse associated with mitral stenosis: In healthy individuals the pulse varies; some have a normal pulse—tension fairly "high;" others a normal pulse—tension fairly "low." In mitral stenosis this physiologic individual difference must not be lost sight of. It would appear that most cases of the lesion pass through three stages: (*a*) A stage in which auscultatory signs (presystolic murmur, etc.) are best developed, while symptoms of disturbed circulation are feebly developed or absent, and in which the pulse is regular and of high tension, showing a well-developed tidal wave. There is, of course, nothing characteristic of the lesion in such a pulse. (*b*) A stage in which symptoms of disturbed circulation are more or less pronounced, and which is accompanied by an irregular pulse of the kind that may be indicated as "typical." A tracing of such a pulse shows a series of low-tension ill-developed curves, interrupted from time to time by a curve of fairly good tension with the tidal wave developed; or a series of good-tension curves may be interrupted by an occasional low-tension and ill-developed curve—that is to say, one or other curve may predominate. A similar tracing is met with in simple muscle-failure of the heart. It is not pathognomonic. Many patients die in this stage. (*c*) The pulse of the second stage becomes one of low tension, and may be regular or irregular as regards the height of the upstrokes of the tracing, etc.; more often the former. In many cases this stage is never reached, the patient dying in the second stage. On the other hand, the third stage is often reached and recovered from, stage two and even stage one being resumed. A low-tension pulse (third stage) is often temporarily assumed from a variety of causes (pyrexia, etc.). Few patients die with a first-stage pulse, except from some complication. Physiologic low tension must be borne in mind in estimating the prognosis. Certain patients have low-tension pulses from first to last. The three stages referred to are mere generalizations. It must not be supposed that exceptions are infrequent. The bigeminal pulse is frequently met with in mitral stenosis, but is also common in simple "muscle"-cases. In aortic incompetence even, it is by no means rare. It should not be associated with any one lesion, and digitalis is commonly a factor in its production. No pulse is pathognomonic of mitral stenosis. Each type of pulse is also met with in other diseases. A patient with mitral stenosis may show at different times and under different circumstances extremely high tension (especially under the influence of digitalis) and extremely low tension. In the stage described as the second the pulse-tracing may be regarded as a combination of the characteristic curves of the first and third stages. The second stage may not be represented.

***A Case of Acute Leukemia.***—Seelig (*Deutsches Archiv für klinische Medicin*, Band 54, Heft 6, p. 537) has reported the case of a boy, eleven years old, who at the age of nine had an attack of scarlet fever, complicated by nephritis. From this illness the boy had never wholly recovered, remaining pale and eliminating considerable albumin in the urine. For a period of five weeks there had been excessive fatigue, with nausea, headache, and mild gastric disturbance. Examination disclosed enlargement of the spleen, but the blood presented no abnormality. There was a brief interval of remission in the symptoms, but these returned with their previous intensity in the course of sixteen days. The pallor was now marked; the face and especially the eyelids appeared edematous, but did not pit upon pressure. The gums were swollen, and in places bled readily on pressure. The lymph-glands in the axillæ, groins, and flexures of the elbows were distinctly enlarged. The liver was enlarged, and the spleen was also increased in size. Examination of the blood showed an enormous increase in the white corpuscles, with a preponderance of myelocytes. As the case progressed, pain and tenderness appeared in the right ankle and the foot, together with enlargement of the veins. Small movable nodules appeared behind the ears and in various situations upon the thorax and abdomen. The temperature rose above normal, and petechiæ appeared upon the anterior surface of the body. Hematemesis occurred, the patient grew progressively worse, and finally died. Upon post-mortem examination, in addition to the superficial hemorrhages and nodules, the spleen and liver were found to be enlarged. The thymus was persistent. The heart was enlarged, and the precordial surface presented many white, moderately firm nodules, in the midst of which were numerous hemorrhages. The lungs were slightly emphysematous, and presented ecchymoses beneath the pleuræ. A number of small indurated lymph-glands occupied the hilus of the spleen. The mesenteric glands were enlarged. The kidneys also presented upon the surface nodules and hemorrhages. The mucous membrane of the stomach and intestines contained prominent white lymph-follicles and a number of small hemorrhages. A collection of enlarged lymph-glands occupied the transverse fissure of the liver.

***Fetal Endocarditis in Association with Deficient Interventricular Septum.***—Railton (*Lancet*, No. 3754, p. 327) has reported the case of a boy, four years old, who had

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always been delicate, and did not walk until the eighteenth month, and subsequently was unable to play about like other children, being easily exhausted and out of breath. He had frequently complained of pain in the region of the heart, but had not suffered from articular rheumatism or shown any blueness of the lips or fingers. For three weeks following exposure to cold the child had been worse, and on coming under observation presented well-marked symptoms of broncho-pneumonia. The area of cardiac percussion-dulness was greatly increased. No murmur was audible. The patient grew steadily worse, the temperature rose to 106°, and death took place after twenty-seven days. Four days previously a systolic murmur was audible over the right ventricle. Upon post-mortem examination the lower lobes of both lungs were found consolidated, while islets of broncho-pneumonia were scattered over the rest of the lungs. The heart was large, principally upon the right side. The tricuspid valve was the seat of large verrucose vegetations covered with a deposit of fibrin. Close to the tricuspid orifice were a few other vegetations on the auricular edge, and one recent irregular ulcer. The remaining orifices and valves were normal and the ductus arteriosus and foramen ovale were closed. There was a deficiency of the interventricular septum about the undefended space large enough to admit a quill. This opening was larger at the side of the left ventricle than on the right side, where it ended between the insertion of two cusps of the tricuspid valve nearer to the right auricle than to the ventricle. The edges of this orifice were quite smooth. It seemed evident that the lesion of the tricuspid valve had started during fetal life, and that the endocarditis had also continued its evolution subsequently to birth.

***Successful Bilateral Ovariectomy during Pregnancy.***—MERKEL (*Münchener medicinische Wochenschrift*, 1895, No. 37, p. 864) has reported the case of a woman, thirty-six years old, who during her seventh pregnancy presented melancholia of progressive character. Upon examination the uterus was found to be enlarged in a degree corresponding with the fourteenth week of pregnancy. To its right was a movable, tensely elastic tumor, as large as a child's head, which was taken to be a degenerated ovary. The left ovary appeared to be cystic, and about as large as a fist. The mental symptoms became aggravated, and the patient threatened to commit suicide unless released from the hospital and sent home. This was accordingly done, and, in view of the possibility of rotation of the pedicle of the right ovary, operation for the removal of the ovaries was undertaken. That state of affairs was found to exist. The twisting was released and the pedicle ligated and severed. Upon the left was found a parovarian cyst, which was removed. The uterus was not disturbed. The abdominal wound was closed, and an appropriate dressing applied. Upon emerging from the anesthesia the mental disturbance was entirely gone. There were no complications, and the pregnancy pursued a normal course, delivery of a living child being successfully effected, and the patient's health, both mental and physical, continuing undisturbed.

***Retention of Urine of Malarial Origin.***—OCHEVSKY (*Bulletin Médical*) has reported the case of a young man, living in a malarial locality, who had suffered with complete retention of urine for two days. The patient had for five years suffered from malarial fever, was anemic, and presented enlargement of the liver and spleen. Attempts at catheterization were ineffectual, evidently from contraction of the sphincter vesicæ. Both quinin by the mouth and morphin beneath the skin failed to bring relief. By the third day the bladder had become enormously distended, and the suffering was intense. From time to time, at fairly regular intervals, the patient was seized with paroxysms of vesical spasm. During the night coma set in. Upon the conviction that the disturbance was of a malarial origin 7 drops of Fowler's solution of potassium arsenite, followed by 15 grains of quinin sulphate, were injected subcutaneously. The result was remarkable, the patient urinating spontaneously an hour later. The urinary retention reappeared a week later, but was finally dispelled by renewed injection of quinin and arsenic.—*Ann. des Malad. des Organes Gen.-Urin.*, 1895, No. 9, p. 854.

***Syringomyelia of Akromegalic Type.***—LORRAIN (*Progrès Médical*, 1895, No. 17) has reported the case of a man, forty-two years old, who presented enormous enlargement of the hands with decided kyphosis. There existed, besides, atrophy of the muscles of the upper extremities and of the shoulder-girdle, derangement of sensibility, involving especially pain and temperature, and atrophic change in the bones and skin of the upper extremities. Numerous nodular thickenings were detectable in the course of the right ulnar nerve.—*Centralbl. f. Inn. Med.*, 1895, No. 37, p. 906.

***For the Preservation of Organic Urinary Sediments.***—FISCHEL (*Prag. med. Wochenschr.*, 1895, No. 12) recommends centrifugation, followed by washing of the sediment to the point of decolorization with a physiologic salt-solution. After decanting the supernatant fluid a mixture of equal parts of glycerin and water is added, containing 2 per cent. of a saturated alcoholic solution of thymol. The organic matters may thus be preserved for months, and are as susceptible to stains as those contained in recent urine.—*Ann. des Malad. des Organes Gen.-Urin.*, 1895, No. 9, p. 853.

## THERAPEUTIC NOTES.

***The Employment of Borax in the Treatment of Epilepsy.***—As the outcome of a considerable clinical experience, FÉRÉ (*Revue de Médicine*, 1895, No. 9, p. 750) has arrived at the conclusion that while borax frequently has little or only passing effect in the treatment of epilepsy, the drug is useful in some cases and may be employed when the bromids fail. Some care must be exercised in the use of borax as it is capable of causing derangement of renal function.

***For Hay-fever.***—

| | |
|---|---|
| R.—Mentholis . . . . . | gr. xx. |
| Olei amydal. dulcis . . . | ʒij. |
| Acidi carbolici . . . . | ♏x. |
| Cocain. hydrochlorat. . . . | gr. vj. |
| Unguent. zinci oxidi . . . | ʒss.—M. |

S.—Introduce into nares.

SMITH, *Medical Record*, No, 1300.

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## MEDICAL STATISTICS.

We have on several occasions called attention in these columns to the faulty and irrational way in which statistics are often used to prove medical theories. Figures are not so stubborn as they are commonly accredited to be, but are as yielding as dough and can be kneaded into any form that one desires. They can be made to prove or disprove anything, if one's audience is unlogical enough to accept his reasoning. It was the sophists of old who, with figures, proved that the elephant could never overtake the tortoise, if the tortoise had ever so little advance, and ever since, though we may not wilfully seek to deceive our hearers, we appeal to statistics as the final tribunal to prove that one is two and black is white, and that one medicine has curative powers and that another has not.

Counting heads is a very simple procedure, and a schoolboy in the lowest grade can do it; but before we begin we must have an intelligent conception of a head, for surely it would be a grevious error under the circumstances to count feet as heads.

Enumeration, however, is a comparatively easy task, and our most serious mistakes are made when we endeavor to judge of the relation of one group of aggregates to another.

First, we have a quantitative relation. If, for example, we have in one year $x$ deaths from a given disease, and in another year a greater number, represented by $y$, the question arises, Is $y$ greater relatively or absolutely? If the population were to remain stationary, then a comparison could at once be made, but an increase in population might in itself be sufficient to account for the greater number of deaths. Having then made certain that $y$ is *relatively* greater than $x$, we may look about for the causes of this increase.

In his *Theory of Statistics*, Meitzen states that "the judgment of causal connection is reached only after we have taken up in succession the possible causes and carefully analyzed them, much in the nature of an experiment;" beginning with the most probable cause and examining successively each probable one until a cause sufficiently well grounded is found. How seldom do we see this rule observed in medical statistics? It may be that an increase of crime has "been shown to coexist with an increase in the importation of wool," that the number of marriages in a country increases as the price of rye decreases. Are these facts in causal connection or are they unrelated?

Vienna has a death-rate of 43 per 1000, London of 18 per 1000. In the former city an average of 42 persons inhabit one building, in the latter only 6.5 persons. Are these two sets of facts in causal relation, or is it that Vienna has such a high death-rate because every year one-third of all the births occurring in that city are illegitimate, and, as is well known, illegitimate children have a very high mortality? This example is cited merely to show how in any case there may be a complexity of operative factors and, unless all are considered, how erroneous may be the conclusions arrived at.

With these facts in mind let us view the statistics of the antitoxin-treatment of diphtheria, and see if all sources of error have been eliminated in their collection and presentation.

As scientists we must consider the matter without prejudice one way or the other. Neither the favorable results that have been experienced in individual hands, nor the enthusiasm of others, nor yet the dogmatic opinions of authorities ought to influence the study of figures.

From the remarks that follow we trust that our position on the question of the antitoxin-treatment

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of diphtheria will not be construed as in any sense antagonistic. This particular therapeutic procedure is used merely as an example, and our words are equally applicable to any new form of medication, whatever may be its merits. We merely ask that medical men, before placing reliance on statistics, presented indiscriminately, view them from all sides and refuse to express judgment until a careful analysis has been made. It is because we feel that there is some efficacy in the antitoxin-treatment that we are all the more anxious that it should not be brought into disrepute by its overzealous friends.

We find it stated, for instance, that under the use of the antitoxin the mortality of diphtheria has been greatly reduced. What are the proofs? First, in hospitals in which the remedy is used the figures show a great diminution of the death-rate as compared with former months or years when it was not employed. Here is a fact. What are the possible causes at work?

Gottstein in commenting upon a paper read before a Berlin medical society, showed how easily errors creep in when we judge figures with a biased mind. It was maintained that the mortality of diphtheria in the city of Berlin was formerly one-half that of the Berlin hospitals, because only the severer cases were sent to the latter for treatment. With the beginning of the new treatment the patients were sent in much greater numbers to the hospitals, almost twice as many admissions being recorded, and the mortality-rate fell. Now, if the premises are correct, and every case of diphtheria in Berlin had been sent to the hospitals, irrespective of any treatment, the death-rate from this disease in the hospitals would have been the same as that of the whole city—a reduction by this means alone of 50 per cent.

Thus it will be seen that before we can judge of the value of a remedy from hospital-statistics we must have a correct idea whether or not the general relation has been disturbed. It is claimed by some that the total death-rate from diphtheria in New York and Boston has been much lower in the past six months than in any previous year, and the result is attributed to the somewhat general use of the antitoxin. Henry W. Bettman, in THE MEDICAL NEWS of August 10, 1895, p. 145, clearly shows how this reduction was brought about in Boston by improved methods of diagnosis. "Cases of diphtheria that formerly would have been called simple sore-throat" are reported now, because of bacterial analysis and efficient inspection, so that in 1894 there were nearly twice as many cases on record as in any previous year. Of course the death-rate must fall under these circumstances. The wonder is that it does not fall more. But let it be established without a doubt that under the use of the antitoxin the percentage of cures has increased, are there no other factors that contribute to this result?

We have spoken of bacterial analysis. Now it is pretty nearly certain that many persons who were considered to be suffering from a mild form of angina were in reality infected by the Klebs-Loeffler bacillus, and thus coming under treatment early were speedily cured or saved from becoming seriously affected. Again, when a greater number of all the cases occurring in a city are sent to the hospitals, the better nursing and attention that those who are sent there receive must materially affect the general mortality.

But another factor may influence the result, and it is applicable to all new remedies and operations. The physician when making trial of the antitoxin is extremely solicitous for the recovery of his patient, and it is unfortunate that he cannot devote to every patient that comes under his care that close attention that he gives when a new remedy or treatment is upon trial. Under the latter conditions visits are made oftener, work that is usually relegated to the nurse or attendant is performed personally, the temperature is more frequently recorded, and all little changes that occur are noted. Can anyone doubt that this must be productive of better results than when some routine plan of treatment is indulged in and left for performance largely in the hands of untrained caretakers?

Supposing that the antitoxin and a syringe were given to the mother of a diphtheric child, with instructions to inject a dose three times daily as directed, and the doctor would drop in once in twenty-four hours to watch the case, would we have such favorable results to chronicle?

Until we have two sets of cases side by side, both equally well nursed and attended to, the one treated with the antitoxin, the other without, we must be extremely guarded in our opinion as to the probable cause of the diminished mortality.

We shall not speak of those wilful misrepresentations of statistics that omit such cases as are beyond cure, much after the fashion of a celebrated reformatory-superintendent who sent all his bad boys to the penitentiary, and then reported a high percentage

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of reform in the remaining number. It is perfectly proper, when a new remedy is on trial, to leave out of consideration those unfortunate cases in which death occurs before sufficient time has elapsed to study the effect, but it is extremely unfair and dishonest to compare such selected cases with the remainder, good, bad, and indifferent. There is danger, on the other hand, that we will employ a certain remedy only as a last resort, and then condemn it, quoting in justification our failures.

The root of the whole matter lies in the fact that *statistics* is a *science*, with laws as well established as other sciences, and amateurs who dabble in it make mistakes as amateurs in other fields are likely to do.

To accept a remedy, to utter dogmas concerning it, or to reject it as a failure on the basis of figures alone, when such figures have not been carefully studied, is too much the tendency of many of our time, and because of this unscientific haste the medical profession is often held up as a laughing-stock before the world.

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### A HUMBUG AT LOURDES.

IT is scarcely worth while for a medical journal nowadays to call attention to cases of alleged faith-healing at a religious shrine or under any form of religious excitement. The essential characteristics of these cases are so well known to science, and generally so well understood by intelligent men, that to dwell upon them is usually only to waste space and opportunity. The flagrant offenders in these cases are not, as a rule, the patients themselves, for in most instances these are self-deluded; but they are the ecclesiastic authorities, who persistently parade these cures and obstinately palm them off as evidences of a supernaturalism which they themselves should know well enough has had no hand in the business.

It is rather the mode now, in our *fin de siècle*, for ecclesiastics of all denominations to affect to believe that theology has no real quarrel with science; that when each is shown in its true light the lines of convergence are seen to be approaching to a gratifying extent. Scientists await the evidences of this approach with judicial calmness; but meanwhile they note that no spurious cases of demon-possession, witchcraft, and faith-cure arise in any quarter of the earth, but that they are hailed by the ecclesiastic party with unbounded delight and vociferous acclaim as the theologic contribution to the love-feast of science and religion. It is therefore a matter of considerable interest and importance to note the recent exposure of a fraud at Lourdes, because the case for a short time baffled common sense as well as science, and gave the priestly party a conspicuous opportunity for unctuous but premature jubilation.

We refer to the case of Delannoy. This impostor was a warder in the Paris hospitals from 1877 to 1881. He thus became familiar with the superficial appearances of many diseases, and also became so enamored with hospital-life that this became for him the ideal of existence. With almost nothing to do and with others to do it for him—this in brief was to be Delannoy's elysium. He resolved to enjoy it to its full extent. He therefore made his plans, which were extremely simple, and began to sham the early stages of locomotor ataxia. We do not know what he did with his knee-jerks, but he evidently did not reinforce them, and we suppose that his pupils had not yet become involved; but all the other early symptoms of tabes, especially of the sensory type, being easily simulated, he assumed his rôle, and made his début at the Salpêtrière, where he promptly victimized Charcot. After this eminent savant had made a diagnosis things were evidently easy for Delannoy in Paris. Charcot's diagnosis was a *passe-partout*. The doors of all the hospitals stood open to the malingerer. Who, in Paris, would dispute the diagnosis of the great neurologist?

From this period Delannoy's course was steadily onward and upward, until he almost attained saintship. Some of his adventures, however, were harrowing and almost bring a tear—probably *did* bring Delannoy's tears. He was for a time in Callard's wards in the Hotel Dieu, but, liking change of scene, he went, in an evil hour for him, to the Necker Hospital, where Rigal awaited him with the inevitable hot iron. Here he was burnt in a red-hot fashion, and in the intervals was blistered in order to keep up the revulsive effects. The impostor endured this as long as he could and then fled. Later, under Ball he was treated with belladonna and morphin, much to his satisfaction; but apparently tiring even of morphin in a year he professed himself cured and left. Relapsing, he once more encountered Rigal with his hot irons, but soon sought more congenial quarters, and passed successively through the Beaujon, the Charité, the Lariboisière, and other hospitals. Some of these institutions he entered more than once. He was finally captured by Dujardin-Beau-

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metz in the Cochin Hospital, and was hung up. The suspension-treatment was then all in vogue in Paris, and Delannoy, probably knowing that he could not escape it anywhere, submitted to this benevolent and optimistic therapeutist, who strung him up fifty-eight times in two months.

But these various therapeutic adventures need not detain us, although they occupied Delannoy for several years. Finally, either because he wearied of this burden of pathology or because he was convinced that tabes is practically an incurable disease, and will not yield to hot irons and suspension, he resolved to give up the game. It occurred to him that the easiest and most rational way to give it up was to go to Lourdes and be cured. He foresaw fame and even gain at the shrine; and then, too, it offered him a neat way out of one deception by helping him to slip gracefully into another, and so to return to the world with the posterior columns of his cord all right, and no questions asked. He resolved to abandon medicine and to seek the church.

Accordingly Delannoy went to Lourdes. He arrived there in a most pitiable condition. He was carried to the Virgin Mary's Grotto, kissed the ground, and remained a long time prostrate before the Holy Sacrament displayed at the altar. Suddenly, according to his own veracious statement, he had a feeling of a mysterious inner force, which caused him to stand, to walk, to drop his crutches, and, we suppose, to resume his reflexes. This transformation was of course the signal for the other pilgrims (poor dupes, probably mortally diseased) to sing hymns of praise. The beaming fathers of the Grotto were not slow to take the bait. They treasured up all the details and proofs of this modern "miracle," and prepared to confute the infidels. They supervised an appropriate spectacular display; and in the evening a torchlight-procession of pilgrims was seen "threading its way up the zigzag paths of Massabielle, rejoicing for the miracle." Delannoy was of course in the front rank of this procession. The next day the impostor was examined medically in the presence of an archbishop and a bishop, and was declared *ex cathedrâ* to have been cured of locomotor ataxia. The miracle was duly recorded in the register of Notre Dame de Lourdes, and Delannoy, without undue delay, returned to Paris as an honored guest of the national pilgrimage.

It is needless to say that the physicians of the Paris hospitals were staggered by this case. They examined Delannoy again and again after his return, and not one of them seems to have suspected the truth even then. A telegram was sent from Paris to Lourdes expressive of this medical perplexity. It said, "He walks like a country postman." Thus in homely phrase science bore testimony to the truth of the miracle.

In the following year (1890) the fathers of the Grotto appointed Delannoy overseer of a home for invalids awaiting to be miraculously cured. Such an institution might, we submit, be henceforth called a "Hôpital Delannoy." It would thus help to preserve a unique reputation, which soon spread over Europe, America, Asia, Africa, and Australia. From all these parts of the world the ex-tabetic was soon in receipt of rich presents, with prayers that he would intercede with the Virgin, with whom he was supposed to have extraordinary influence. The rogue was now at the pinnacle of his fortunes.

But Delannoy was evidently not made to endure either fortune or tabes. He wearied of one as he did of the other. In about a year he stole 400 francs of the good fathers' money. As there was nothing miraculous about the theft Delannoy decamped. He again sought Paris and gained admission at St. Anne's Asylum as a lunatic; was discharged, and admitted again on a doctor's certificate, and this time stole 1800 francs of the hospital-funds. This was the beginning of the end. Having devoted himself so successfully to medicine and theology he was now about to try his experience with the law. There was to be no humbugging the law, however. He was arrested by the police, and was pronounced by some shrewd police-surgeons to be a malingerer of extraordinary skill. He was tried, convicted, and sentenced to four years' imprisonment and ten years' police-surveillance.

Not the least notable feature of this case is the fact that Delannoy deceived Zola. The realistic novelist could not explain the "realism" of this supposed cure. It is to be predicted in conclusion that while Delannoy deceived both the physicians and the priests, there will yet be seen this difference: The former will acknowledge their error, but the latter will not abolish Lourdes.

## EDITORIAL COMMENTS.

***Medical Advertising in Austria.***—The Vienna Medical Chamber has recently adopted regulations governing advertising by medical men. The commission of any of the following acts on the part of a physician will constitute an offence against professional dignity:

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Causing or permitting, or refraining from preventing (when he has the power) the insertion of advertisements in newspapers, journals, indexes, guide-books, annuals, leaflets, circulars, or any other description of printed matter. This article, however, does not refer to medical publications, nor is it meant to hinder a medical man from publicly proclaiming his entry into practice, his return after a prolonged absence, or his change of domicile, provided the notification is not repeated more than three times. The same information may also be conveyed by means of a circular, but in both cases the notice must contain nothing additional beyond the name of the advertiser, his academic qualifications and legal medical designation, an indication of the specialty he professes, his address, and the hours he is at home for consultation. Publishing, or allowing to be published, letters of thanks and expressions of gratitude from patients who have been treated by him; recommending, either directly or indirretly, in pamphlets and popular publications, his own system and methods of treatment in preference to those of other practitioners; allowing commissions to midwives, waiters, commissionaires, porters, etc., in return for their services in procuring him patients; drawing public attention to himself by means of a charlatan's sign-board; endeavoring in an unbecoming manner, after the fashion of quacks, to attract notice to the medical establishment he either owns or directs.

In commenting upon these regulations and their adoption by the Medical Chamber of Vienna, the *Lancet* points out that far more latitude in the way of advertising is thus allowed to the medical profession in Austria than is the case with the English profession. It further expresses the opinion that the best way to safeguard professional dignity is by drawing up hard and fast regulations prohibiting personal announcement of every kind and description. With these views we are in hearty accord. When it shall become necessary for medical men to exploit themselves by advertisement, surely will medicine have degenerated into a business.

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***The Revival of the Index Medicus.***—The following subscriptions to the *Index Medicus* received up to October 8th have not been included in any of the several lists already published in THE MEDICAL NEWS:

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| Detroit: H. O. Walker | $25 |
| Milwaukee: R. Newton Hawley (Milwaukee Medical Society) | 25 |
| Philadelphia: H. A. Hare | 25 |
| Edward Martin | 25 |
| Santa Barbara, Cal.: R. J. Hall | 25 |

A total of two-hundred subscriptions will be required before December 1st to complete the guarantee-fund for the revival of the *Index*, and it would be a disgrace—not to speak of the actual loss—to the medical profession if the requisite number were not secured within the stipulated time. Every medical society with a membership of twenty-five and more, and every reputable medical college in the country, owes it to the profession to subscribe annually for one copy.

We are informed by Dr. J. B. Roberts that the Committee, of which he is Secretary, has received the following additional subscriptions:

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|---|---|
| Dr. L. McLane Tiffany, Baltimore | $25 |
| American Medical Missionary College, Battle Creek, Mich. | 25 |
| Dr. George R. Fowler, Brooklyn | 25 |
| Library Medical Department University of Buffalo | 25 |
| Dr. M. D. Mann, Buffalo | 25 |
| Dr. J. H. Etheridge, Chicago | 25 |
| Dr. E. Fletcher Ingals, Chicago | 25 |
| Dr. Joseph Ransohoff, Cincinnati | 25 |
| Dr. J. T. Eskridge, Denver | 25 |
| Dr. W. M. Polk, New York | 25 |
| Dr. Thomas G. Ashton, Philadelphia | 25 |
| Dr. Ernest Laplace, Philadelphia | 25 |
| Lea Bros. & Co., Philadelphia | 25 |
| Library of the College of Physicians of Philadelphia | 25 |
| Mr. W. B. Saunders, Philadelphia | 25 |
| Dr. John D. Roe, Rochester | 25 |
| Dr. E. C. Burnett, St. Louis | 25 |
| Dr. H. H. Mudd, St. Louis | 25 |
| Dr. E. L. Trudeau, Saranac Lake | 25 |

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***Climate and Health.***—On p. 134 of THE NEWS of February 2, 1895, we called attention to the proposition of the Weather-bureau of the United States Department of Agriculture to undertake the collection and periodic publication of data bearing upon the relation of disease and death to meteorologic phenomena—a matter of great interest and much importance. This plan has reached fruition, in so far as the first number of the new journal, designated *Climate and Health*, and edited under the direction of the chief of the Weather-bureau, Prof. F. Willis S. Moore, by Dr. W. F. R. Phillips, has been issued. This contains a summary of statistics covering the four calendar weeks that began June 30 and ended July 27, 1895. The data presented consist of climatic charts and tables obtained from the records of the meteorologic observatories of the Weather-bureau; statistics of mortality and morbidity furnished by special reports of public-health officials and of physicians made directly to the Weather-bureau; and some mortality-statistics taken from reports made to the Marine-hospital Service. We welcome this new addition to scientific literature which reflects credit upon the government, the Department of Agriculture, and the Weather-bureau.

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***The Need of Animal Experimentation.***—We commend to the consideration of our antivivisection-friends and to others the following concluding remarks of the elaborate and comprehensive article on "The Treatment of Diphtheria with the Antitoxin," by Dr. W. H. Welch, the distinguished Professor of Pathology in Johns Hopkins University, published in the *Bul. of Johns Hopkins Hospital*, vol. vi, Nos. 52, 53, p. 97, and from which we quoted some statistics in THE NEWS of Oct. 5th:

"The discovery of the healing serum is entirely the result of laboratory-work. It is an outcome of the studies of immunity. In no sense was the discovery an accidental one. Every step leading to it can be traced, and every step was taken with a definite purpose and to solve a definite problem.

"These studies and the resulting discoveries mark an epoch in the history of medicine. It should be forcibly brought home to those whose philozoic sentiments outweigh sentiments of true philanthropy that these discoveries, which have led to the saving of untold thousands of human lives, have been gained by the sacrifice of the lives of thousands of animals, and by no possibility could have been made without experimentation upon animals."

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***Cropping Dogs' Ears.***—There is now before the American Kennel Club a proposed amendment to its bench-show rules to prohibit the cropping of dogs' ears, which, if adopted, will prevent all dogs cropped after a fixed date from being shown at any of our bench-shows. Cropping has now been declared by the English courts to be an illegal cruelty, and the Irish Terrier Kennel Club has the great merit of having inaugurated a systematic reform by excluding cropped dogs from its bench-shows. It is certainly desirable on all grounds—for the sake of kindness, for the health of the animal, and for esthetic reasons—that this cruel and disgusting practice of mutilating animals should be stopped.

# SELECTIONS.

## *A LITTLE CONTROVERSY.*

MR. GEORGE M. GOULD seems to be the editor of THE MEDICAL NEWS. The other day in his paper he made an exaggerated and somewhat stupid assertion in defence of the manly art of vivisection,[1] reflecting on the usefulness and sincerity of a universally respected association whose object is the suppression of cruelty to animals. This assertion was politely and ably corrected by Mrs. Caroline Earle White in a letter to the aforementioned editor. The letter was not long, but was concise and to the point. It ended with these words:

"Begging you to do me the favor to publish this letter, I remain yours truly,

"CAROLINE EARLE WHITE,
"Cor. Sec. Am. Antivivisection Society."

The chivalrous recipient, however, not handicapped by any ideas of professional etiquet, instead of publishing the letter, sent the following note:

"DEAR MRS. WHITE: I regret that owing to the crowded condition of our columns, it will be impossible for me to insert the letter which you have so kindly sent me, date of May 13th.

"Very sincerely yours,
"GEORGE M. GOULD."

Now, Mr. Gould, we all know that the columns of THE MEDICAL NEWS are not so overcrowded with interesting matter as to justify you in violating the ordinary laws of courtesy, and we would suggest, in a brotherly way, that even if not hampered by any sense of justice, both you and your publication might derive a lasting benefit from a closer observance of the established rules of your profession.

Your bravery in times of war might stir the nation, but the courage you have displayed upon this occasion is not of the kind to which monuments are erected.

It is possible that *Life* may be unjust in expecting a very tender regard for human rights from one who defends the cutting up of living animals for the entertainment of medical students.—*Life*, August 13, 1895.

The following communication is much too long for the space we should wish to give, but as the writer feels himself injured by our previous comments we prefer to print it entire.

The author signs his name at our own request.

### *Faddomania and Courtesy.*

*To the Editor of Life,*

SIR: In *Life* (August 13th) you lampoon a physician for declining as editor to print in his journal a letter from a correspondent, and you read him an illustrated lesson in etiquet. By all rules of humor and literary exegesis the vignet you use, a hog reading books of etiquet, can only be construed as setting forth your own office and mental condition. It is a praiseworthy and admirably frank personal confession. But that you do not choose good books is evident from the fact that every line of your article violates the rules of courtesy and good breeding practised by gentlemen. Your books should teach you:

1. Not to vilify a brother-editor for a courteous rejection of a manuscript written by a (to you) unknown correspondent. To mind one's own business is simple decency.

2. Not to drag a physician's name into public print (lay journals) without his consent.

3. Not to name an editor personally, instead of his journal, when discussing editorial action.

4. Not to indulge in personalities instead of discussing principles.

Please now ask yourself:

1. Is it good editorial judgment, especially as editor of a humorous journal, to be a faddomaniac? Does not zealotry destroy the sense of humor? Please let us yet read our *Fliegende Blätter* and *Life* for many years to come.

2. Is intense conviction any proof of sound judgment? Have you taken the least precaution to know the truth, either as to the question of vivisection or as to that of the rejection of a manuscript by a distant brother-editor? All good men will join with you in stopping the abuses of vivisection, which, to a limited degree, all physicians will recognize to have occurred in the past, but let us have no fanaticism! Remember that the great vivisectionist, Ludwig, was the greatest promoter of kindness to animals in all Europe.

3. Should not the vain editorial portrait you reproduce have much longer ears, without, of course, losing the characteristic face given? *Life's* article is as non-intellectual as it is boorish. *E. g.*: A little exercise of judgment would have brought you proof that both the Antivivisection Society and the malicious creature who sputters her pitable nonsense in every possible journal of the land, and who has so egregiously duped you, are the butts of ridicule with those of any degree of understanding. You also charge a gentleman with "defending the cutting up of living animals for the entertainment of medical students." This person, however, never did defend the practise of vivisection for didactic purposes, and has always and publicly argued against it. Injustice and calumny are bad, even in a good cause—a fact you two have yet to learn.

Finally, let me ask you:

1. If your child falls ill with diphtheria will you call a vivisectionist-physician, and will you permit him to use the antitoxin-treatment to save its life? Even your

[1] The reference is to an editorial article in THE NEWS on "The Capricious Mutilation of Animals," April 27, 1895, devoted entirely against a fashionable form of cruelty to animals, with not a word in defence of or about vivisection.—ED. THE NEWS.

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poorly informed self must know that this boon to humanity could only reach you through vivisection.

2. Are you a meat-eater? If so, you live by the death of animals. You are a butcher as well as a vivisectionist. Is the nourishment of your individual body of more good to humanity than the progress of medical science? The animals you have butchered and vivisected for this purpose were not, as almost always in the laboratory, painlessly killed, but were either brutally pounded to death, or (lobsters, etc.) often ended their lives after long hours of atrocious torment for your palate's sake.

3. Do you not know that every line you write about the vivisection-controversy is loaded with error and falsehood—the often exposed charge of cruelty and pain? The fact is that pain would destroy the value of nine-tenths of all vivisection-experiments, even if the sympathy of the experimenter were not active to prevent it.

4. Do you not know that such rabid and ill-informed faddists as you and Mrs. White are the greatest provokers of cruelty to animals? You disgust people with a movement they would otherwise aid, and you make everyone with a grain of sense or indignation wish to kick all dogs and horses for having such "defenders" and "friends" as your illogical and foolish selves. Luckily we have pity despite you, and are not haters of all womankind because of one virago.

Sincerely yours, GEORGE M. GOULD.

PHILADELPHIA, September, 1895.

It is, perhaps, only fair to give our readers both sides of a question, and we honestly regret that our fervid correspondent should have displayed so much more heat than logic in the space at his disposal. We also regret his questionable allusions to a universally respected lady whose disinterested labors in a splendid cause have won an enviable fame.—*Life*, October 15, 1895.

### A COMBINATION OF SCIENCE AND SUPERSTITION.

THERE is now a Chinaman practising in Los Angeles, Cal., who is well versed in medicine, having been a student of the English Mission Medical School. The man first studied a Chinese translation of *Gray* by Dr. Dudley and the translations of *Bartholow's Practice*, and other medical works by Dr. J. G. Kerr. He is a very bright fellow and an observing student. Being of a business turn of mind and learning of the insatiable appetite for occultism and for the marvellous that existed in the United States, he studied English systematically and emigrated to America to fill a long-felt want. Were he to practise Western medicine in an open manner he would find a great practice among his own countrymen who invariably prefer intelligent medicine; but Americans pay far better, so he assumes to practise Oriental medicine and carefully keeps in the unseen background both his knowledge of medicine and of English. Were it known that he practises intelligently he would soon lose all of his American *clientèle*. This man certainly practises under many advantages, as he brings to his aid all that scientific knowledge or skill can give, supplemented by all the psychological influence that the mind and imagination through suggestion can exercise over the individual. He has here a great advantage over his Chinese brother-practitioner of Chinese medicine who is completely at sea as to scientific medicine, or over his American fellow-practitioner who can neither impress nor mystify the imagination of his patient. Like his Parisian *confrère* with the astrolobe, magic mirror, and of occult and mystic surroundings, he can perform cures or miracles which are not given to be performed by either ignorant pretenders or by educated men. To admit that this combination is right and proper or necessary, as some might conclude, is to admit that our masses have not risen above the level of the general human understanding of the masses of the sixteenth century, when magic of all sorts formed the basis of medical practice, and when demoniacal possessions were common beliefs both in the practice of medicine and in the exercise of the theology of the times.—*The National Popular Review.*

### A DEATH-PREVENTING INVENTION.

AN ingenious and investigating genius, named Auguste Theiss, has invented a machine through which life may be prolonged indefinitely—at least this is the modest claim of the inventor, as original in his conceptions as the San Diego physician, who, in the *American Gynecological and Obstetrical Journal* for April, 1895, claims to have "discovered *a primipara, eighty years of age;* discovered accidentally while endeavoring to pass a catheter," in a case of misplaced urethra—and which he is attempting to bring to governmental notice. The authorities of New York State have been besieged by this philanthropist, but it would seem that so far he has been unable to secure an investigation of his machine, or even an interview with the Governor, and he has solemnly notified Governor Morton that he will hold him accountable for all the deaths occurring in New York State for the coming year. The machine has not been seen nor its details made public, but the inventor has allowed it to be known that the principle upon which it operates depends upon the retention in the body of a proper degree of animal heat.—*The National Popular Review.*

## SPECIAL ARTICLE.

### LUDWIG AND THIERSCH.

AT the beginning of the last semester, within one week, the medical faculty of the University of Leipzig was deprived by death of two of its oldest and most eminent members.

The names of Ludwig and Thiersch stand out prominently in the short list of illustrious men, who, during the last fifty years, have earned for themselves the honor of having inaugurated a new era in scientific medicine. Though each worked in a special field, both have opened up entirely new channels of investigation in which, through long lives of unwearied activity, they have been able not only to make fundamental observations and discoveries themselves, but also by virtue of their personalities to establish schools and to stimulate younger minds to undertake researches and to attempt

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the solution of problems first rendered accessible by their pioneer work.

While everyone is compelled to admire the many-sided talent of the surgeon and pathologist, the intellectual superiority of the great physiologist, regarded at least from a scientific standpoint, will generally be admitted. Ludwig was one of those phenomenal personages who at rare intervals in the history of science stand out head and shoulders above their contemporaries, possessing a clearness and wideness of vision that to ordinary mortals seems incomprehensible—almost abnormal. Though the search-light of his energies was turned in the most varied directions, the results attained by him in any one would have sufficed by themselves to rank him as a genius in the scientific world. The discoveries he made were by no means accidental; the new facts that he brought to light were always the result of some well-planned research in which the end was often seen even before the work began. There is scarcely any department in the broad field of physiology in which our views have not been extended, improved, or entirely reshaped by Ludwig and his pupils, and several doctrines that owe their origin to his early work have remained unchanged and are practically the same as when formulated by him thirty years ago.

Carl Friedrich Wilhelm Ludwig was born at Witzenhausen, December 29, 1816. After studying in Marburg and Erlangen, in 1839 he took his doctor's degree at the former university, where two years later he was appointed second prosector in the anatomic institute. In 1842 he received the *venia legendi* for physiology, his thesis being entitled "Contributions to the Doctrine of the Mechanism of the Secretion of the Urine" (Beiträge zur Lehre vom Mechanismus der Harnsecretion). In this monograph he put forward a physical theory of excretion, based upon anatomic investigation, a subject that occupied his attention later on at intervals for many years afterward. In his earlier studies he had familiarized himself with the physical conditions regulating the endosmosis of fluids through animal tissues, and this knowledge he now utilized in order to elucidate the hitherto puzzling phenomena connected with the activity of the kidneys. In 1849 he accepted the Chair of Anatomy and Physiology at the University of Zurich, the years spent there proving particularly fruitful. One can heartily sympathize with Gaule, who, when writing of the period from 1849 to 1855, during which the secretory function of the nerves was discovered and the foundations for the doctrines of the interchange of gases during respiration, and of the movements of the lymph were laid, openly declares his envy of Ludwig's companions at that time, whenever they spoke of his energy and single-heartedness in discussing his experiments, theories, and plans.

In 1855 he was appointed Professor of Physiology and Zoology at the Medical Military Academy (the Josephinum) in Vienna. Ten years later he succeeded Ernst Heinrich Weber as Professor of Physiology at the University of Leipzig, where he continued to work and to teach till within two months of his death. His great friend, Helmholtz, preceded him only by a few months. Last year Ludwig, writing to Gaule in Zurich, had spoken of him as follows: "Helmholtz recovers only slowly from his attack. I hope at all events that he may not suffer; the sudden death which befell Hoffman is a good fortune granted, alas, to few."[1]

The good fortune of which he spoke was not destined to fall to Ludwig's share; the severe attack of influenza from which he suffered weakened and rendered him prostrate for several weeks before his death.

No biography of Ludwig, however brief, could be satisfactory unless some mention were made, not only of his personal work, but also of that of certain of his friends and contemporaries and of their immediate followers.

Quite early in his youth, Ludwig had become firmly established in most of the fundamental principles that must be recognized as underlying all his subsequent work. For a century before his time the theory of the so-called "vital force" had been brought forward to explain those phenomena connected with the animal body, to deal with which chemistry and physics had seemed to be powerless. *Vitalismus* was an officially recognized dogma, almost too sacred to be attacked with impunity. Ludwig and his three friends—Helmholtz, Ernst Brücke, and E. du Bois Reymond—were firmly convinced that the processes taking place in living organisms conformed like all others to definite physical and chemic laws, and were not to be attributed to some mystic and indefinite vital force into the nature and workings of which it was sacrilegious to inquire. They not only had the courage to make public their opinions, but they also set to work to prove the truth of their beliefs. The early investigations of Ludwig concerning the mechanics of the urinary secretion, to which reference has been already made, represent one of the first and most important blows to the doctrines of the "vitalists." Looking back upon the achievements of these four scientists, each working by his own method and at his particular research, but all engaged with allied problems, one cannot but admire the genius, daring, and indefatigable industry of this circle of friends. Blow after blow was struck at the vitalistic theory; rampart after rampart fell, until finally the old dogmatic view appeared to be entirely demolished. Students flocked to join the successful contestants, each bringing his own contribution to the work, until one of Ludwig's students, speaking of the triumph, was able to write, "So complete has been the victory and so thoroughly has the new doctrine entered into the flesh and blood of the younger generation that nowadays when here and there a vitalistic idea is advanced its proposal is looked upon almost as something new."

These doctrines are universally accepted by the physiologists of to-day, and while it is not surprising that they should not, in so short a time, have had their full effect in other than medical circles, it must be admitted that the influence exerted by them upon the development of modern thought has already been profound. Nevertheless, it is still true that the struggle for emancipation from the obstructing Vitalismus, though practically over as far as most physiologic processes are concerned, is by no means ended in certain special domains, a fact which neuro-physiologists and psychologists realize only too well.

[1] "Helmholtz erholt sich von dem Anfall nur langsam. Möchte er nur nicht leiden; freilich so viel Glück wie von Hoffmann durch den raschen Tod verfuhr ist nur wenigen beschieden."

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Of those generally recognized as great men, some have gained their greatest renown as investigators: others have been most successful as teachers; not all have possessed an admirable personality. Ludwig was a great investigator, perhaps greater as a teacher; while as a man he was a wonder and a surprise to all who came in contact with him. The researches carried to a successful termination by himself or under his direction are far too numerous to permit of even a short reference to each one here. The subjects they deal with are most diverse, and include many of the most important contributions to general and special physiology, physiologic chemistry, and microscopic anatomy of the past fifty years. The literature is for the most part accessible, a large proportion of the articles having been published in the *Zeitschrift für rationelle Medicin*, *Wiener Sitzungsberichte*, and *Arbeiten aus dem physiologischen Institut zu Leipzig*.

If a man of such wide interests can be said to have had a hobby, it was the study of the circulation. In it he found manifold opportunities for his exact methods of measurement, and particularly for the transference of the laws of hydrodynamics. It was his delight to take a firm hold of things, to grasp something tangible, and where for others rough estimations might suffice, for him weights, linear measures, measures of capacity, curves, and written records were an absolute necessity.

His epoch-making invention of the kymograph in 1847, to which the sphymograph owes its origin, really makes him the father of the so-called graphic methods of investigation, by means of which not only the physiologist and experimental pathologist, but also the clinician, is enabled to follow and accurately record many of the processes that go on in the living organism. The blood-pressure and the velocity of the blood-current were measured, and the effects of internal and external influences upon the blood-pressure and the pulse-frequency could now for the first time be satisfactorily studied. In 1864, in conjunction with Thiry, he published his important monograph, "Concerning the Influence of the Cervical Spinal Cord upon the Circulation," in which it was proved that the pressure in the arterial system could be regulated through the varying distention of the vessels of the portal circulation.

In 1873 Dittmar, under Ludwig's direction, determined approximately the site of the vasomotor center in the medulla, and at the latter's suggestion Mosso, in the following year, registered the independent movements of the peripheral bloodvessels in the kidney. As a result of this research were developed later the beautiful plethysmographic methods, by means of which Mosso and others have been able to make important contributions, many of which have an interesting psychologic bearing. As early as 1866 Ludwig, with E. Cyon, had demonstrated a sensory nerve—the depressor nerve—connecting the heart with the medulla, which, when stimulated, could perceptibly lower the tonus of the vasomotor centers, and through which "the essential motor of the circulation—the heart—is able to regulate the resistance which it has itself to overcome." This monograph excited much comment and admiration, and was crowned by the Paris Academy.

In 1871 Bowditch proved, so far at least as the frog's heart is concerned, that any stimulus, no matter of what strength, so long as it is as high as the minimal, would call forth a maximal contraction. Luciani, in 1872, introduced a method by which the "over-living" organ artificially nourished could be studied for a long time after being separated from the rest of the body. With the important results, especially with regard to the relations of the tissues to the blood and lymph, which this method has yielded when applied to other organs, muscle, kidney, liver, intestine, etc., everyone is now familiar. The fruitful researches of von Frey and Krehl upon the pulse are so well known that they need hardly be mentioned here. The investigations made by Ludwig and his students concerning the gases of the blood and the relations of the individual tissues to the general gaseous interchange are full of interest. Quite recently (1894) one of his students, Franz Tanzl, published the results of a research which, along with other things, proved that the ligation of the intestinal arteries can diminish the respiratory gas-interchange by over 30 per cent.

In enumerating the points bearing on the circulation ordinarily demonstrated by experiment in our best schools in a course of practical physiology, one cannot help being struck with the fact that almost everyone is included in the researches to which we have referred. A perusal of the work of Tigerstedt, a former pupil of Ludwig, on the circulation will give an excellent idea of the scope of the work done by the master and his followers in this field.

Almost as astonishing as his brilliant discoveries regarding the circulation and respiration were the results attained by him when he directed his attention to the subject of glandular secretion. His publication in 1851 concerning the relation of the nerves to the secretion of the saliva furnished an entirely new standpoint from which glandular activities could be studied. With the aid of his students he established the fact that the salivary glands can actively secrete quite independently of the height of the blood-pressure. Of his studies and those of his students upon the gastric and intestinal digestion and the secretion of the bile, it will suffice here to say that a great part of what stands in the modern text-books of physiology concerning these points has emanated from the Physiological Laboratory of Leipzig. In addition to his own early work upon the excretion of the urine he directed several important investigations upon this subject in his laboratory. Among these may be mentioned the researches of Ustimowitsch, and later those of Slosse, upon the effect of ligation of the mesenteric arteries on urinary secretion, and that of Grigus, in 1893, which proved that the heat-production in the kidneys was directly proportionate to the amount of urine excreted.

The Ludwig school has also made contributions of the highest order to the physiology of muscle and nerve. Ludwig himself, however, as it would appear, was especially interested in the effects of muscular movements upon the circulation and respiration. Lauder Brunton, in an address delivered in London, in September, 1894, which dealt more especially with this subject, referred in a most touching manner to the work and character of his former teacher. Ludwig further directed his acute powers of observation and his exact methods to the subject of the various reflexes, and the immediate excitability of the gray matter of the spinal cord by mechanical irritants was proved by his pupils. The sensory

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nerves, both general and special, have been submitted to frequent studies in his laboratory. Of these the recent investigations of von Frey concerning the sensations of touch, pain, and temperature, an epitome of which will be subsequently published in THE MEDICAL NEWS, are especially worthy of mention.

In the allied field of physiologic chemistry—a favorite "hunting-ground" of the master—we find between the years of 1856 and 1894 a whole host of publications, many of which contain the results of researches of fundamental significance. The work of the Ludwig school, both in its exactness of method and in the practicability of its results, would even by itself be sufficient, notwithstanding the occasional criticism of the so-called "pure chemist," to refute the charge that "all physiologic chemistry is mere dilettantism." In 1856 the occurrence of inosite and of uric acid in the animal body was determined by one of Ludwig's pupils. In 1871, by means of newly devised methods, the lime and phosphoric acid in the blood were quantitatively determined. In 1874 he directed a research concerning the constitution of the fats which enter into the blood from the alimentary canal, and in 1876 himself investigated the flow of fats through the thoracic duct while the subject was upon a fatty diet. The absorption of acid fats by ways other than the thoracic duct formed the subject of a special research, the results of which were published in 1891, while in 1894 the splitting up of fatty acids, independently of ferments, was experimented with.

In looking over the list of publications from Ludwig's laboratory it will be noticed that the chemistry of the liver was not forgotten. Thus, in 1887, we find an article on "The Origin of Lactic Acid from the Over-living Liver," and in 1890 one entitled "The Impoverishment in Glycogen of the Anemic Liver." Among so very many important publications—for no article published with his sanction can be called unimportant—it seems almost invidious to single out any particular one. But the work of Scheremetjewski in 1868, and that of Harley in 1893, on the decomposition of easily oxidizable substances in the blood must be mentioned. The results of Mall's work upon the chemistry of the connective tissues, with particular reference to the reticulum, have already passed into the text-books. Comparatively recently Siegfried has separated an important constituent from muscle, and his *Fleischsäure* promises to be of more than ordinary interest to physiologic chemists and physiologists. The fate of the products of proteid digestion, during and after absorption, was a task assigned to Schmidt-Mühlbein and to Salvioli. Fano in 1881 studied the remarkable effects of peptone upon the blood and lymph, and some of the best work of the talented but ill-fated young English physiologist, Wooldridge, was done in Ludwig's laboratory and under his direction.

But even in the briefest summary it would be an injustice to omit altogether his researches in yet another branch—the department of anatomy—a subject for the problems of which Ludwig always retained the highest reverence. As a physiologist he never forgot that his branch was an offshoot of anatomy, and he recognized the fact that without the anatomic basis and the possibility of applying to it physics and chemistry there could be no physiology. On undertaking his work at Leipzig and in organizing a physiologic institute he expressly stipulated for the establishment of three distinct departments—one for minute anatomy, a second for physics, and a third for chemistry. In this way arose the histologic department of the Physiologic Institute of Leipzig, with which Schweigger-Seidel, Schwalbe, Flechsig, and Gaule were connected. It was here, under the influence of Ludwig, that these men received the precise and methodic training which, together with the spirit inspired by their master, led in great part to the fruitful results that have characterized their labors.

Even in the later years of his life Ludwig kept fully abreast with the advanced researches in the histology of the various organs of the body. Only a short time before his death he was at work upon a model in which were represented the latest investigations concerning the structure of the cerebellum as brought out by the silver-method. His library was rich in anatomic monographs, and those who worked with him were often astonished at his familiarity not only with the titles and dates of articles on histologic subjects, but also with the minute details contained in them. He regarded each of the various organs as a delicate mechanism, the structure of which must be thoroughly known before a perfect understanding of its functions could be reached. It was his special delight to start with a recent microscopic finding and ferret out for it a physiologic explanation. Quite early in his career he made valuable contributions to our knowledge of the nervous structures contained in the septum of the frog's heart, and in his laboratory at Zürich the work of Peyer on the brachial plexus and that of Rahn on the secretory nerves were noteworthy. In Vienna, in conjunction with Tomsa, Leber, and McGillavry, he began to investigate the finer distribution of the bloodvessels and lymphatics, and ever afterward during his lifetime he had some one or other of his students busily engaged in this field. It was his aim to find if possible in every organ what he was accustomed to speak of as the "vascular unit," and to compare this in glandular structures with the "secretory unit." The structure of the kidney, the liver, the salivary glands, the intestine, the pancreas, the skin, and of voluntary and involuntary muscles, as well as of different parts of the central nervous system, were thoroughly explored. The bloodvessels and lymphatics of the muscles, of the skin, and of the larynx were exhaustively worked out. Similar studies for the eye had been made by Leber in 1865, and for the ear by Prussak in 1868, and again by Eichler in 1893. Under Ludwig's direction Mall completed his studies on the blood-supply and the general structure of the intestine of the dog. Giannuzzi, von Fleischl, von Mihalkovics, von Asp, Stirling, Gaskell, Spiess, Hesse, Altmann, Spalteholz, Fischer, and Fick are among those who worked at minute anatomy at Leipzig at his suggestion. His anatomic colleagues at various times, Professors His, Meyer, and Braune, were always glad to acknowledge the profit as well as the pleasure of intercourse with him.

Ludwig possessed in a high degree the rare power of successfully utilizing men and materials. He seems to have always known how to employ to the best advantage the knowledge possessed by the men who came to work with him. It is sometimes the case in laboratory-experience that a subject with which the director is imperfectly acquainted is best kept in the background. Not so with Ludwig. He hailed with pleasure the advent of a man trained in special methods, physical or

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chemic, with which he himself had had little or no experience. By these means he often gained an opportunity of solving a problem that had long puzzled him.

But it was in his capacity as a teacher that his powers showed themselves at their best. In his ability to attract and to retain around him the picked men, and to call forth from brain and hand the very best work of which they were capable, Ludwig stood second to none. Ever painstaking in the teaching of his ordinary students, with whom he was always a favorite, he reserved his main energies for more advanced students, and found his chief delight in training the men who, having finished their preliminary studies, or already holding teaching-positions elsewhere, came to him to be taught how to investigate, how to undertake and to carry out research-work. Among these, who numbered in all more than 300, are to be found the names of many of the leading physiologists of Russia, Germany, England, America, Austria, Italy, Sweden, Denmark, Switzerland—in short, of the civilized countries of the world. It is stated that up to within a few years ago all the professors of physiology in Russia, and many of the clinicians of that country, had been trained in his institute.

Ludwig's knowledge was so broad, his interests so many-sided, and his personality so charming that naturalists of the most varied nationalities and specialties were anxious to have him as a guide, and proud to proclaim him as their master. His laboratory was the home of an international circle, and even in troublous times his magic influence was sufficient to maintain among all the friendliest relations.

The willingness of Ludwig to sacrifice himself for his pupils and to hide his own personality behind that of his pupil affords an example of abnegation seldom, if ever, paralleled in the history of science. He is a great man who can make clever men willing to direct all their energies to the working out of his ideas. He is a greater man who gives them all the credit of the results obtained. When we think of Ludwig, not only when his reputation was made, but even when he was a comparatively unknown man, leaving his own particular work to assist a pupil in solving a problem, of which the idea was his own, sometimes even writing the article for publication without sharing any part in the title, we encounter a generosity, an absolute unselfishness which, in these days and judged by what we call high standards, seems almost more than human. It has been suggested by Gaule that if one sought to find fault with him it would be that sometimes he devoted too much of his own strength to the service of others, and thus brought credit and renown to quarters where it was not fully deserved.

In his intercourse with his students he knew how to gain not only their respect, but, what is often far more difficult, their love. A well-known American anatomist, from whom much of the information contained in this sketch was derived, spoke more especially of the generous sympathy which he showed toward strangers, whether his own countrymen or foreigners, who came to work in his laboratory. Even the most timid student soon felt at ease in his presence, and it was characteristic of him that he welcomed in his working-room and was willing to devote his time to a newly fledged graduate, provided only that he was an earnest worker and was willing to learn. It was Ludwig's custom to let fall ideas so gradually and so casually, if one may say so, in the course of conservation that it often became difficult for the student when he had grown with them to recognize them as those of his master rather than as having been evolved by himself.

The same extreme delicacy of sensibility, of which his sympathetic manner was an outcome, also rendered him extraordinarily quick in reading the characters and aims of others. With him, the words of Goethe, *Vor den Wissenden sich stellen, sicher ist's in allen Fällen*, had a peculiar aptness. A student could not be long with him without exposing to his master's view his real qualifications and his ideals. He was an enemy to any secrecy connected with a research. It was not Ludwig's custom to take a number of new pupils at one time; in fact, he preferred to have only one beginning investigator in order that he might be with him and launch him safely upon the sea of independent research.

Professor His, who, through the deaths of Ludwig and Thiersch, is left the senior member of the medical faculty, in his eloquent panegyric said of Ludwig: "He gave to his students the highest gift vouchsafed to a teacher to impart, the power of investigating by themselves." His acquaintance with the development of modern physiologic thought, his own bitter experiences in the long struggle against dogmatism for freedom of thought and speech, his keen appreciation of the limits of knowledge, his recognition of what for technical reasons for the moment must be unknowable, all these were among the factors, which, together with his far-reaching knowledge of men and things, rendered him eminently fit to be the guide and instructor of the young naturalist.

The courage and enthusiasm with which Ludwig, even at an advanced age, attacked the most difficult problem provoked the admiration of all who knew him, and with this hope, this belief of being really able to do something worth while, he never failed to imbue his co-workers.

One of them, in a recent eulogy, tells an interesting anecdote in this connection, which is quite worthy of repetition here. A well-known investigator, who had himself grown old, once asked him: "Have you then actually the hope that physiology will eventually attain the end at which it is aiming?" and on receiving to his surprise an answer in the affirmative, immediately said: "Ah! you must be one of Ludwig's men." ("Freilich Sie kommen von Ludwig.")

Ludwig during his lifetime had seen medical ideas completely revolutionized, and, in fact, had himself played no small part in this revolution. He had seen the brilliant discoveries in electricity which have been evolved in the past fifty years. "Why then," he asked himself, "should not the next half-century achieve in the explanation of the cell as much as the last has done in the elucidation of the organs?" And so he went on day by day in his laboratory, ever hopeful himself, cheering the discouraged, repressing gently the overelation of the too zealous, above all setting to those around him the best of examples.

It is to be hoped that ere long a competent biographer will be found among those who knew Ludwig best to give to the world a full account of this brilliant and useful life. It is difficult to imagine a subject which

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could be made to give more entertaining or inspiriting reading. Kronecker, in his eulogy, especially dwells upon the fact that pathology and internal medicine always found in Ludwig a very warm friend and supporter. He looked upon every case of disease as a physiologic experiment, which was all the more interesting in that, as a rule, it could not be produced artificially, and, *vice versâ*, he regarded every physiologic experiment as an artificially produced disease, which since, as regards cause and effect, it can be better understood than the natural disease, must be for the pathologist of the highest significance. He understood that the aims of pathology are closely allied to those of physiology, and that while the former would restore the diseased organ to a healthy condition, the latter seeks to perfect and multiply the functions of the sound organ. Thus he regarded pathology as inseparately linked to physiologic experiment, and physiology in turn to clinical observation.

While devoting his life in the main to physiology and its problems, he was in the widest sense a man of liberal culture, and rejoiced that physiology had been able to make no mean contributions to music, painting, philology, and, not least of all, to psychology. In Leipzig, where he spent the last thirty years of his life, he was widely known and loved outside of scientific circles, and on the fiftieth anniversary of his doctorate he was granted "the freedom of the city" (Ehrenbürgerrecht).

Two friends with whom Ludwig lived in the most intimate relations were the painter Knaus and the writer Gustav Freytag. The latter, speaking in 1887, said: "If I have learned to think highly of German character, to despise dissimulation, to prize a love for and a confidence in humanity, I have been much helped in it by my two trusty friends, Ludwig and Wachsmuth;[1] for widely separated as are their occupations, both practise in them the same code. The great scientist, who for the success of his students makes his knowledge and his powers serviceable, with a self-sacrifice unexampled even among us, and the unselfish leader of great enterprises, the man whom many make their confidant and counsellor, the pride and favorite of his fellow-citizens, both men live in the same high-minded devotion to the welfare of others. They have often given courage to the heart of their friend, and through their lives have often corrected his judgment of others. The same holds true for the wives of these two men. Though neither Frau Ludwig nor Franziska Wachsmuth have ever been directly portrayed in any of my works, yet to the ideal type of the affectionate and brave German wife, who so often is pictured in my stories, both have without knowing it richly contributed."

It would seem as though destiny could not long keep apart these two friends, for only a few days after the death of Ludwig that of the great writer was announced.

Karl Thiersch was born in Munich in 1822. He came of a celebrated literary family, his father being Fried. Wilhelm Thiersch, who is so well-known in connection with the study of philology in Bavaria. Young Thiersch studied in Munich, Vienna, Berlin, and Paris, taking his doctor's degree in 1846 at the age of twenty-four. In 1850 he became assistant to the distinguished army-surgeon Stromeyer, and, having at his suggestion directed his attention to the study of pathologic anatomy, in 1854 he was appointed to the Professorship of Pathology in Erlangen. Thirteen years later he was elected to the Chair of Pathology at Leipzig. In 1870 he took an active part in connection with the Franco-Prussian war as consulting *Generalarzt* of the 12th Army Corps.

If Thiersch as a scientist was not so creative as Ludwig, he was not lacking in independence of thought, and the extent of his mental grasp is well shown by the diversity of his investigations. As has been the custom among surgeons in England and also to a certain extent on the continent, Thiersch, like Billroth and Langenbeck, spent a long period in pathologic studies before giving himself up entirely to surgery. Of his earlier works, that on pyemia, the result of investigations made while prosector at the city hospital in Munich, is one of the most important and sheds new light upon the nature of septic processes. His best known pathologic research, and that which will probably be longest remembered, dealt with the microscopic structure of carcinoma. He made a most painstaking study of epithelioma, and demonstrated its constant epithelial origin. He opposed the doctrine of Virchow that a carcinoma could arise from connective tissue, and proved synchronously with Waldeyer, then working in Breslau, that a genuine primary carcinoma never developed except in situations in which epithelial cells are normally present.

His three greatest contributions to surgery proper were: (1) His investigations concerning the healing of wounds; (2) the operation of skin-grafting; and (3) the introduction of aseptic surgery into Germany. He devised numerous new operations and improved many of the older ones, particularly in the domain of abdominal surgery. The use of the solution containing salicylic acid as an irrigating fluid first suggested by him became widely known and was formerly much used in America. To Thiersch is also due the credit of being one of the first to recognize the advantage of the pavilion-hospital which had developed during the Civil War in the United States. It was mainly due to his influence that the large hospital in Leipzig was remodelled after this plan, and Thiersch, in talking to his students, was always wont to emphasize and to beg them never to forget that fresh air and sunshine were necessary adjuvants in the successful treatment of surgical cases. With his surgical colleagues he was always a favorite. He was chosen President of the *Deutsche Gesellschaft für Chirurgie*, and was recently elected Ehrenmitglied, an honor which has been bestowed upon only a few, and those the most distinguished men in Germany. His patients loved him, and it is said of him that even as a surgeon the children never feared him.

Like Billroth and Richard von Volkmann, Thiersch occupied his leisure hours with the study of art and literature, for which he had a marked and perhaps an hereditary predilection. He has more than once appeared in the rôle of literary historian, for example, as interpreter of Shakespeare's heroes.

His pleasing personality and sparkling humor, together with his origin and high culture, assured him the friendship of those in high places in the land. King Albert of Saxony numbered him among his personal friends, and as his body was borne to the grave, with an accompaniment of military honors seldom wit-

[1] Director of the Creditanstalt.

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nessed in Leipzig, among the massive floral decorations could be seen a huge laurel wreath interwoven with white azaleas and bearing the crown and initials of the king.

That the death of these two giants among men has been keenly felt throughout the civilized world is evidenced by the numerous addresses that have been delivered and the articles that have appeared in so many widely separated countries. Nevertheless, however paradoxic it may appear, the loss is by no means an irreparable one. Each lived to accomplish more than is generally permitted to a single individual. Both laid the foundations of structures on which future generations can safely build. Both have gone to their well-earned rest, full of years and honors. But their works survive them, and perhaps no more fitting epitaph for them could be found than that of Sir Christopher Wren, in St. Paul's Cathedral, "Si monumentum queris, circumspice." L. F. B.

# SOCIETY PROCEEDINGS.

## AMERICAN PUBLIC HEALTH ASSOCIATION.

*Twenty-third Annual Meeting, held in Denver, Col., October 1, 2, 3, and 4, 1895.*

(Continued from page 419.)

THIRD DAY—OCTOBER 3RD.

DR. W. P. MUNN, of Denver, read a paper entitled

### NATIONAL LEGISLATION FOR THE CARE OF PUBLIC HEALTH.

He declared that the failure of Congress to support a National Board of Health was a source of deep regret to the working sanitarians of the whole country. For years the medical profession had asked Congress to establish a department of public health, which shall give human beings as much attention, at least, as is bestowed upon animals. Dr. Munn's proposed law has been cast in definite form, and reads: "An act to establish laboratories of hygiene in connection with State boards of health, existing by law in several States." The drafted bill cites the object and duty of the projected laboratories to be the conducting of original researches or the verifying of experiments upon human diseases, and methods of prevention; upon the advantage of residence in certain localities under particular climatic conditions; as to the effect upon the health of soil, atmosphere, altitude, occupation, food, drink, clothing, and dwelling-places. In this connection it should be the duty of the Supervising Surgeon-General of the Marine-Hospital Service to furnish forms for the recording of the results of all investigations, and the duty of the laboratory to make the Governor of the State in which it is located a detailed report of its operations, and that copies be forwarded to the Marine-Hospital Service and the Secretary of the Treasury. Bulletins should be published every six months to be transmitted in the mails of the United States free of charge.

The proposition is to establish in each State and Territory, in connection with the State boards of health, a State laboratory of hygiene, to be supported by an annual appropriation from the government. This plan is similar to the agricultural experiment-stations in connection with the various agricultural colleges of the different States. The paper suggests that in States having no State boards the congressional appropriation would be stimulating in that State boards might be placed in existence, and finally that $15,000 per annum be appropriated by the national government to each State.

Many advantages would accrue to sanitary science from the co-operation of laboratories working by co-ordinated methods upon similar problems.

### DISPOSAL OF THE DEAD.

The Committee on the Disposal of the Dead made a report through its chairman, Dr. C. O. Probst, of Columbus, Ohio, detailing the order of the building of all crematories and the number of dead bodies consumed to within recent date:

| | | Bodies. |
|---|---|---|
| Washington, Pa., | 1884 | 89 |
| Fresh Pond, N. Y. | 1885 | 1554 |
| Buffalo | 1885 | 250 |
| Pittsburg | 1886 | 100 |
| Cincinnati | 1887 | 314 |
| Detroit | 1887 | 183 |
| Los Angeles | 1887 | 182 |
| St. Louis | 1888 | 437 |
| Philadelphia | 1888 | 399 |
| Baltimore | 1889 | 84 |
| Swinburne Is., N. Y. | | 109 |
| Troy | 1890 | 56 |
| Waterville, N. Y. | 1891 | 5 |
| Davenport, Ia. | 1891 | 86 |
| San Francisco | 1883 | 200 |
| Chicago | 1893 | 87 |
| Boston | 1893 | 118 |
| San Francisco | 1895 | 28 |

There has been a total of 4281 bodies consumed since the foundation of the first crematory, of which 2783 were males and 1498 females. The cost of burial is usually $25, though in San Francisco $60 is charged. The only States in which there are laws governing cremation are Massachusetts, Michigan, Pennsylvania, and Ohio. Dr. Probst said that the only objection that had been advanced against cremation was a legal one, claiming that this method destroyed the evidences of crime, while on the other hand it killed all germs of contagion.

DR. G. T. SWARTZ, of Providence, R. I., contributed a paper entitled

### BACTERIOLOGIC RESULTS FROM MECHANICAL FILTRATION.

He related in detail the results of a series of experiments conducted by the city of Providence, which proved conclusively that mechanical filtration to remove bacteria from water was possible, and that it had been successfully done in the experiments referred to.

A paper on the

### MEDICAL INSPECTION OF SCHOOLS

was read by DR. S. H. DURGIN, of Boston, who last year introduced the system of medical inspection of the schools in Boston. He gave the results of a four-months' trial of the plan, showing that it was actually a necessity in the schools if the health of the pupils was to be protected. The figures given showed that over 1000 cases of infectious diseases were detected in time to prevent a spread of the contagion.

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DR. A. W. SUITER, of Herkimer, N. Y., followed with a contribution entitled

DISPOSAL OF THE DEAD, WITH ESPECIAL REFERENCE TO THE PREVALENT PRACTICE OF EMBALMING,

in which he called attention to the fact that the embalming methods of to-day were not successful, and only resulted in filling the body with poisons which eventually contaminated the soil and streams of the cemeteries. For example, a recent examination of the waters of Scajaquada Creek, which flows through Forest Lawn Cemetery, Buffalo, showed that they were impregnated with considerable quantities of arsenic of the kind used in the prevalent method of embalming. A law to regulate embalming was considered imperative.

DR. S. E. SOLLY, of Colorado Springs, read a paper entitled

INFLUENCES PECULIAR TO HIGH ALTITUDES UPON SANITARY CONDITIONS.

He argued that the special effects of altitude are directly produced neither by reduced pressure of the atmosphere nor by a reduced amount of oxygen affecting the lungs and heart, but by the amount of oxygen-pressure. When air is inhaled into the lungs a certain proportion of the total amount of oxygen contained in the air is absorbed by the hemoglobin. The endeavor was made to show that the peculiar effects of high climates are to increase the number of red blood-corpuscles and the amount of hemoglobin and the power of blood-absorption. The chest-expansion is also increased, the latter being admitted by all observers, who have remarked frequently upon the almost emphysematous character of the breathing, especially at the apices of the lungs of the native-born children and old residents.

As to the effect of altitude upon disease, it is found that better results are obtained in high than in low climates upon all diseases where anemia is the most important factor in the disease, and also in chronic germ-diseases, such as tuberculosis, provided, of course, that in either case some of the conditions do not exist.

DR. FELIX FORMENTO, of New Orleans, Chairman, read the report of the Committee on the

ABUSE OF ALCOHOL FROM A SANITARY STANDPOINT.

The ground was taken that alcoholism does not apply to taking a glass of pure wine at meals, or a glass of pure whisky. Alcoholism was defined as meaning the chronic excessive use of alcoholic drinks. The habitual use of strong liquors cannot be too strongly condemned. The report showed the difference between the effects of pure and impure liquors on the system. Good wine cheers and strengthens, but does not inebriate. Alcoholism is one of the potent factors in crime, suicide, and poverty. It peoples our hospitals; it is responsible for cripples, epileptics, and, while it exists mostly among the poorer classes, the wealthy and intellectual do not escape.

DR. CHARLES DENISON, of Denver, read a paper on

DEGENERATIVE HEREDITY, OR SOME DEGENERATIVE INFLUENCES OF MODERN CIVILIZATION UPON HEALTH.

He discussed the subject under five propositions, as follows:

1. Life-saving and life-prolonging means tend to suspend the law of natural selection.

2. Extremely intellectual and nervous lives propagate physically defective offspring.

3. Confined occupation, hindering development, leads to physical degeneracy in subsequent generations.

4. The growing independence of women, involving the withdrawal of desirable women from motherhood, tends to cripple the race.

5. The young must be forewarned, the people physiologically enlightened, and the State has a duty to perform.

FOURTH DAY—OCTOBER 4TH.

DR. MANUEL CARMONA Y VALLE, of Mexico City, Mexico, read a paper on the

PROPHYLAXIS OF YELLOW FEVER.

He said that in 1882 he began subcutaneous injections of urine into the cellular tissues of the back part of the arms of those afflicted with this malady. He found that he could vaccinate, so to speak, a sound person with the fluid from a patient who had had the fever for four or more days, and that those submitted to this process were immune from any further danger of contagion. He has made 1358 inoculations, and there has never followed any other consequence than the formation of a single abscess at the site of injection. This method has been used successfully in Panama by Dr. Garcia del Tornel. From 1882 to 1883, while first experimenting, 208 persons were treated, and a relative of the author, employed in the Custom House, although attacked, was not compelled to go to bed. Surgeon-General George M. Sternberg, of the United States Army, who has been in correspondence with the author, proposes that the residuum of urine be obtained by the evaporation of the liquid in a vacuum. Dr. Bouchard, of Paris, has for some time been investigating the treatment, and reports successful results in his experiments on animals.

Before making an inoculation Dr. Carmona dissolves 5 centigrams of residuum in 1 gram of pure water, and injects with a Pravaz syrine.

DR. EDUARDO LICEAGA, of Mexico City, made a further contribution to the study of yellow fever in connection with its medical geography and prophylaxis in the Mexican Republic. He said there are only two points on the Atlantic Coast where yellow fever is epidemic, and none along the Pacific Coast—Vera Cruz and the district situated at the extreme northern point of the peninsula of Yucatan. It commenced last January with 9 cases, reaching its maximum in July, with 225 cases. In 1894 thorough measures were taken to disinfect fever-scourged districts.

Dr. Liceaga claims that the means of combating the disease must be sought in the inoculation of blood-serum from persons already attacked, or who have already suffered from the disease, or by inoculation of blood-serum from animals that have already acquired immunity.

A paper was read in Spanish by DR. JESUS E. MONJARAS, of San Luis Potosi, Mexico, on

THE NECESSITY FOR THE ESTABLISHMENT OF SANATORIA TO PREVENT CHLOROSIS AS THE BEST PROPHYLACTIC AGAINST PULMONARY TUBERCULOSIS IN PARTICULAR AND CONSTITUTIONAL DISEASES IN GENERAL.

Several papers were read by title and referred to the Publication Committee.

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The following officers were elected:

*President*—Dr. Eduardo Liceaga, Mexico City, Mexico.

*First Vice-President*—Dr. A. A. Woodhull, Denver, Col.

*Second Vice-President*—Dr. Henry Sewall, Denver, Col.

*Secretary*—Dr. Irving A. Watson, Concord, N. H.

*Treasurer*—Dr. Henry T. Holton, Brattleboro, Vt.

The place of the next meeting will be Buffalo, N. Y.

## REVIEWS.

Remote Consequences of Injuries of Nerves and their Treatment. An Examination of the Present Condition of Wounds Received in 1863-65, with Additional Illustrative Cases. By John K. Mitchell, M.D. Philadelphia: Lea Bros. & Co., 1895.

The volume before us is of peculiar interest because it deals not only with a certain class of injuries, but especially with the remote effects of these injuries. It is one of the misfortunes of hospital-practice that patients often remain under observation for an insufficient period of time. It can therefore readily be seen that observations embracing such an extended period as that from the late War up to the present time must possess a special value. The injuries dealt with range from mere contusions and commotions of nerves to nerve-section, neuritis, and spinal injuries.

Space forbids a detailed account of the subject-matter of the various chapters. Suffice it, however, to say that numerous interesting facts are presented, especially such as deal with the trophic changes following nerve-injuries, some of which, such as overgrowth of hair and nails, are somewhat unexpected. Other observations, for example those relating to persistent local elevation of temperature after nerve-injury, are very valuable. Some of the cases of spinal injury detailed are important, because some of the phenomena observed resemble those occurring in railway-spine or traumatic neuroses; thus hysteroid convulsive seizures occur closely resembling those occasionally observed in railway-cases. In the chapter upon ascending and migratory neuritis the author details a number of cases in which not only extensive spreading of inflammation along the nerve-trunks occurred, but also various trophic changes ensued. Regarding this form of neuritis, the author believes that the following inferences will be borne out by more extended observations:

1. Pressure, however brought about, whether by inflammatory exudate, external injury, by blow or weight, may be looked upon as a frequent factor, though not a constant one, in the production of spreading nerve-inflammation; but the presence of inflammation in the surrounding tissues, even in direct contact with the nerves, exerts, curiously, little bad influence.

2. The larger nerve-trunks are more prone to present the phenomena of spreading inflammation after injury than small ones.

3. Neuritis may spread either centrifugally or centripetally, the latter, in traumatic cases, being the much more common form.

In brief, this volume contains a large amount of very valuable information gathered at a great expenditure of time and industry upon the part of the author. We may safely predict that for many years to come it will constitute a source of reference for facts regarding the subject with which it deals.

Clinical Lectures on Diseases of the Nervous System. By W. R. Gowers, M.D., F.R.S. 12mo, pp. 279. Philadelphia: P. Blakiston, Son & Co., 1895. Price, $2.

This group of twenty post-graduate lectures, delivered at the National Hospital for the Paralyzed and Epileptic, deals with a number of interesting subjects in the attractive and lucid manner that characterizes all of the work of this distinguished author. The individual lectures have already been published in various medical journals, but Dr. Gowers has rendered the profession a service by collecting them into a single volume and presenting them in connected form. The following subjects have been considered: The Principles of Diagnosis of Diseases of the Nervous System, Mistaken Diagnosis, Argyria and Syphilis, Spastic Hemiplegia, Bulbar Paralysis, Facial Paralysis, Facial Contraction after Palsy, Acute Ascending Myelitis, Locomotor Ataxy, The Foot-clonus and its Meaning, Syringomyelia, The Treatment of Muscular Contraction, The Infantile Causes of Epilepsy, Neuralgia, Lead-palsy, Saturnine Tabes, and Optic Neuritis. The volume, as a whole, is characterized by Dr. Gowers' pleasantness of style, clearness and simplicity of expression, and wide range of acquaintance with all of the details of his subject, and takes a place alongside of other works by the same author. Dr. Gowers expresses the belief that the knee-jerk is never absent unless there is structural disease in muscle, nerve, or cord, or (rarely) within the skull, apparent absence in health being attributable to some defect in method. In the treatment of locomotor ataxy the first place is given to arsenic, and the second to aluminum in the form of the chlorid. In the treatment of neuralgia a combination of strychnin with cannabis indica or gelsemium and nitroglycerin is highly spoken of.

## CORRESPONDENCE.

### "AN ACT TO PROVIDE FOR THE MORE EFFECTUAL PROTECTION OF THE PUBLIC HEALTH."

*To the Editor of* The Medical News,

Sir: Justice and injustice, care and carelessness, studied forethought and equally studied disregard characterize the recent "Act to provide for the more effectual protection of the public health," etc.; copies of which have been recently sent by the Board of Health to all Philadelphia physicians.

By it a doctor cannot avoid acting as the agent of the board, even when he has done nothing to signify his willingness to assume responsibility. "Cases" brought to him or her for examination, even if treatment be refused, must be immediately reported, or the penalty incurred; and full particulars as to name, location, and disease must be given, "together with such other in-

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formation relating thereto as may be deemed important by said health-authorities," and no man can foresee what they may deem important, and so this clause is open to many grave abuses.

SEC. 2. "They may at once place, or cause to be placed, in a conspicuous place or places . . . . a placard or placards." Evidently they are not obliged to do so, the "may" is permissive rather than mandatory; as and in lieu of the placard they may establish a quarantine "with guard or guards."

Now the cost of this protection falls all too heavily upon the poor man. His occupation is too often in his own dwelling; his small grocery, his cobbler's bench, his tailoring is ruined by the placard. Does he, as a jobbing mechanic, go out on calls for his services, he is shunned. The women of the houses are dressmakers and milliners, do sewing by hand or machine, or wash and iron; go out for daily work in families, and their means of obtaining a living are taken away, and often their whole run of business is fatally ruined. In the tenement-houses, filled with many separate families, one case of contagious disease, one small child in some remote, unvisited room, would suspend the avocations of all indefinitely. No wonder that with such legislation the poor dread the doctor as the entering wedge for the Board of Health, and that doctor becomes most popular with them who conceals his cases. Perhaps no scheme short of an order for the general slaughter of the infected family would so thoroughly defeat its own intention as this, coupled as it is with the indefinite power "to establish such rules and regulations regarding the destruction and disinfection of infected bedding, clothing, or other articles which have been exposed to infection" as may be necessary. For no compensation is given for such articles—the hardly earned and carefully guarded treasures of the poor household; and, again, as in the matter of placards, the poor pay too dearly, too exclusively for the so-eagerly sought general safety of the community. There is no crime in contracting disease, but misfortune more deadly than crime. Why should this loss fall upon one alone, which to the public is so great a gain? Every article destroyed should be paid for at a fair valuation; for every store closed there should be moderate compensation; for all enforced idleness from this cause half-wages; and, for the quarantined, rations which will prevent starvation.

Destruction and disinfection are words which have in times past too often conveyed to their victims one and the same meaning; and carpets, blankets, curtains, bedding, and household linen—the pride of the thrifty—have gone to disinfection "where the woodbine twineth." This, too, in the period when the disinfecting apparatus of the city was but an old iron pot in which to burn sulphur, or later a questionable oven at the smallpox hospital, where antagonistic bacteria had a struggle for supremacy, with the odds decidedly in favor of the unknown germ of variola.

SEC. 3. "The head of the family shall be liable for the fine or penalty in any case where such placard or placards are removed, defaced, covered up, taken down, or destroyed with his or her knowledge or consent," etc.

Evidently when the placard disappears, it will not be by orders of "him or her." Oh, no! The householder will rage and throw his or her religion to the winds, and flood the air with denunciations of the culprit, but the small boy will seize the golden moment when the "copper" is resting from his labors, and the beautiful, bright placard, yellow as a dandelion, will flaunt no more on the white front door or the garden-wall.

SEC. 4 provides kindly for the physical rest of the weary undertaker, except "between the hours of five ante-meridian and eleven post-meridian." When are those hours; for except in this definitely marked period he may rest in the bosom of his family; happy undertaker—would that beneficent legislators would do as much for us. At all other times, however, he must hurry up the funeral within thirty-six hours, unless, as in Sec. 5, "special permission be granted by the health-authorities extending the time during which said body may remain unburied, for special and satisfactory cause shown."

What special and satisfactory causes may often exist may be surmised when it is known that in that remote past, already alluded to, a physician who had given a certificate of death from diphtheria in a most aggravated and well-known case was visited by the health-officer in person, and implored by that high official to withdraw his certificate and substitute one of croup, in order that there might be a public funeral; for otherwise he "would lose many votes."

SEC. 6. "All services must be private." Possibly this might mean that nurses should not swab throats at windows in view of the public, nor undertakers cool corpses in backyards; but if it means religious services we cannot make it agree with the next paragraph—"And the attendance thereat shall include only the immediate adult relatives of the deceased and the necessary number of adult pall-bearers." We must remember that this applies to any death from smallpox, cholera, diphtheria, diphtheric croup, membranous croup, scarlatina, typhoid fever, typhus fever, yellow fever, epidemic cerebro-spinal meningitis, relapsing fever, and last, but not least, leprosy. Even the leper is apparently deprived of the services of his spiritual advisers, and yet leprosy is a peculiarly religious disease, all we actually know about it being in the Bible, and almost the only people we remember to have had it being Naaman the Syrian and Miriam the sister of Moses. No Father Damien, according to this law, could recklessly risk his life for it now, for even despised altruism would suggest that while he might sacrifice himself he could scarcely sacrifice the undertaker with propriety, and in Section 9 no undertaker or other person or persons "shall in any case furnish or provide for such funeral more than the necessary number of conveyances for said adult relatives and pall-bearers," there evidently leaving the corpse "without benefit of clergy." Of course, it may be said that the mention of said funeral services implies the clergymen as well as the corpse, as neither is specified; but for the conveyance of the latter there is special provision for in Section 9. It is given, a vehicle "used for the purpose of conveying a corpse only." Surely there might have been added to the scanty train another vehicle "for the clergyman only," as by the terms of the act, unless he feign death, he cannot get in with the corpse, the word "only" forbidding him.

In fairness we can say that the regulations for schools and Sunday schools are good so far as they go, but time enough after recovery is not allowed, knowing, as we now do, how long the reluctant bacillus of diphtheria

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lingers in the fauces. But if longer than thirty days were allowed the attendance in the beloved schools would suffer. Yet the schools, as has been amply proved, are the very hot-beds and culture-fields of disease, of course excluding leprosy, whose spread is mostly in the imagination.

Wisely the power of granting return certificates is given to medical inspectors rather than to the family-physician.

In Section 15 we find the question raised as to the use of vehicles to convey the sick. When the city shall have on call a reasonable number of ambulances for hire or free service, then will be the time to enforce these provisions of the act against conveyance of contagious disease in hired vehicles. We begin at the wrong end. People are always ready to do the safest and best thing when they know how and when it can be done. Give us good hospitals, where one disease can be safely isolated from another; good ambulances, to convey the sick from place to place; and *then* legislation to enforce their use. Till then such laws will only excite derision and disappointment.

To refer once more to placards. The section concerning them applies to the great apartment-houses, hotels, and boarding-houses, as well as to private dwellings, and will make landlords and agents still more reluctant to let rooms or give board to families with children.

It will also result in the enforced exit of cases of contagious disease from such houses to their only refuge—the Municipal Hospital. And how will they get there? For the "victim of disease" must not, according to Section 16, "wilfully expose himself or herself in any street or public place or public conveyance." So that unable to stay and unable to go, unable to walk, for that is "exposure," and unable to ride, there will be left for "him or her" only to promptly die. There seems to be no fine for dying, but for living under all these conflicting circumstances "not less than five or more than one-hundred dollars."

Is the world becoming a world of cowards, or has religion been so utterly, though silently, overthrown that we center all our hopes on this life and fight with a mad eagerness for every additional moment? The old courage that faced disease, contagion, and death seems rapidly disappearing with the advent of the vaunted "new age," and the kindergarten illustrations of bacterial life have struck sudden terror to the hearts of the children of men. With knowledge has come fear, and the bravery of the eld was, it seems, but ignorance of danger. Fatalism is gone and the stolid heart of the fatalist; bacteria and bacilli have come, and our courage oozes from our sterilized finger-ends. We evidently believe the appeal to Bichlorid more potent than the appeal to an overruling Providence.

Sincerely yours,

AN OLD PHYSICIAN.

## THE USE OF APOMORPHIN IN NARCOTIC POISONING.

*To the Editor of* THE MEDICAL NEWS,

SIR: In your issue of Sept. 7th Dr. Brown protests against the use of apomorphin in opium-poisoning, citing a case that terminated fatally after the exhibition of $\frac{1}{8}$ gr. hypodermically.

If I may criticise the case quoted, the apomorphin was given in too large a dose and too late to be effectual. If $\frac{1}{12}$ instead of $\frac{1}{8}$ gr. had been given immediately, instead of after the lapse of more than an hour, the result would possibly have been different. I hold the opinion that apomorphin used cautiously and promptly is indispensable to the proper treatment of some cases of narcotic poisoning. Recently I was summoned to see a case in point: a woman, who during a fit of acute mania, had, with suicidal intent, swallowed 12 grains of opium-extract with chloroform and Indian hemp, in the form of chlorodyne. I found her sleeping soundly, and when aroused she endeavored to jump out of the window. After a violent struggle we succeeded in throwing the patient on the floor, and with the utmost difficulty a subcutaneous injection of $\frac{1}{10}$ gr. apomorphin was given. Profuse emesis resulted and within a minute the patient was out of danger. To have used the stomach-pump or to have followed any other method of treatment would have been impossible. Truly,

ROBERT W. HAYNES,

LOS ANGELES, CAL.

# NEWS ITEMS.

***The Revival of the Index Medicus.***—The following circular-letter has been issued:

1627 Walnut Street,
Philadelphia, October 1, 1895.

DEAR DOCTOR: The *Index Medicus*, as you doubtless know, has ceased to exist, because the number of subscribers was not sufficient to pay for its publication. Its value was so great that the undersigned, a self-constituted committee, have concluded to appeal to the literary workers of the medical profession to unite in reviving it. The nature of the *Index* is such that it can never obtain a large subscription-list, but it is invaluable to those engaged in literary research. It will require about $5000 annually to publish it. The former editors are willing to take up the work again if 200 subscribers at $25 per year can be obtained. We have each agreed to subscribe for a period of five years; will you not do likewise, and mail the accompanying blank, duly signed, to the Secretary of the Committee? If the term seems too long, will you not fill in the blank for three or less years? The Committee also begs you to get as many of your friends as possible to subscribe, and to send to the Secretary the names of any person, society, or library likely to become a subscriber. Yours truly,

| | |
|---|---|
| WILLIAM PEPPER, | J. WILLIAM WHITE, |
| S. WEIR MITCHELL, | W. W. KEEN, |
| H. A. HARE, | GEORGE M. GOULD, |
| DEF. WILLARD, | JOHN H. PACKARD, |
| J. C. WILSON, | E. LAPLACE, |
| H. C. WOOD, | |

JOHN B. ROBERTS, Secretary,
1627 Walnut Street, Philadelphia.

The appended copy of the blank mentioned can be cut and used by any who contemplate subscribing:

..... 1895.

I, the undersigned, hereby agree to subscribe for one copy of the *Index Medicus* for ..... year..... at $25 per year, subject to the following conditions: viz., When

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200 subscriptions have been received by the editors the publication is to commence, and upon notification of this I will send $25 to them. If by December 1, 1895, the 200 subscriptions have not been obtained, the attempt to revive the publication will be abandoned.

(Address) .....

.....

***The New York State Association of Railway-Surgeons*** will hold its fifth annual meeting in the Academy of Medicine, New York City, November 12, 1895. The following program has been arranged:

Preparation of Patient for Amputation, with Remedies Used or Useful in the Treatment of Shock, by Dr. Frank H. Caldwell, Sanford, Fla.; Physical Endurance, by Dr. C. M. Daniels, Buffalo; Multiple Synchronous Amputations, by Dr. W. L. Estes, South Bethlehem, Pa. Discussion on foregoing papers opened by Drs. J. B. Murdoch and N. Y. Leet. Important Unsettled Questions in Railway Surgery, by Dr. M. Cavana, Oneida; President's Address; The Responsibility of the Railway-Surgeon from a Lawyer's Standpoint, by Judge A. H. Dailey, Brooklyn. Discussion opened by Dr. George Chaffee and Clark Bell, Esq. The Importance of a Physical Examination of an Applicant Before He is Placed in the Railway-Service, by Dr. R. H. Reed, Columbus, Ohio. Discussion opened by Dr. G. P. Conn. What is Shock, and How Shall We Treat It? by Dr. R. H. Cowan, Radford, Va.; Arterial Anastomosis, by Dr. F. H. Peck, Utica; First Aid to the Injured, by Dr. C. S. Parkhill; Shock and Its Proper Treatment, by Dr. W. V. R. Blighton, Tonawanda; Why Amputate? by Dr. Stephen Smith; When Shall We Amputate? by Dr. J. B. Murdoch; Where Shall We Amputate? by Dr. J. S. Wight; How to Amputate, by Dr. J. A. Wyeth.

***Decreased Mortality from Diphtheria in New York City.***—Mayor Strong has received from President Charles G. Wilson, of the Board of Health, a table of vital statistics, showing a large decrease in the number of deaths from diphtheria and croup since the Health Board began the use of antitoxin. The figures showing the number of cases, the deaths, and the percentage of deaths to cases in the first, second, and third quarters of the years from 1891 to 1895, inclusive, are as follows:

| Year. | Cases. | Deaths. | Per Cent. |
|---|---|---|---|
| 1891 . . . | 3686 | 1349 | 36.59 |
| 1892 . . . | 4156 | 1540 | 37.04 |
| 1893 . . . | 4721 | 1763 | 37.34 |
| 1894 . . . | 7446 | 2264 | 30.67 |
| Totals 1891–1894 | 20,011 | 6936 | 34.66 |
| Totals 1895 . | 7921 | 1643 | 19.43 |

President Wilson says: "The reduction in the mortality-rate in the first, second, and third quarters of 1895, as compared with the average death-rate for the corresponding periods of the previous four years, has been 43.94 per cent. This large reduction in the mortality-rate from diphtheria and croup for the first three quarters of 1895 is attributed mainly by the medical officers of this department to the introduction and use of diphtheria-antitoxin, and, if this remedy had been generally or universally employed, the reduction in the mortality-rate would, doubtless, have been larger."—*N. Y. Herald.*

***A Gift of Valuable Medical Journals*** will be made to the medical library that appears to offer the best means of service to the medical community in which they may be placed. The conditions attending the gift are that the library shall not have duplicates of the journals to be given them and shall agree to bind them substantially. The journals offered are files of THE MEDICAL NEWS, the *American Journal of the Medical Sciences*, and the *Medical Record* for the past ten years. Correspondence is solicited. Address the editor of THE MEDICAL NEWS.

***Baron Felix Hippolyte Larrey***, the distinguished French Surgeon, died at Paris, October 8th, at the age of eighty-seven years. In 1841 he became Professor of Surgical Pathology at Val de Grace. During the Second Empire he was Surgeon to the French Emperor. He was also a member of the Institute and of the Academy of Medicine.

***Dr. William Macpherson*** died at Philadelphia on October 13th, at the age of fifty-five years. He was an assistant surgeon in the army during the civil war.

## BOOKS AND PAMPHLETS RECEIVED.

The Medical Millennium. The Doctorate Address of the Medical Department of the University of Louisville, Session of 1894–95 By H. A. Cottrell, M.D. Reprinted from the American Practitioner and News, 1895.

Report of Seven Cases of Double Castration for Relief of Enlarged Prostate Gland. By H. O. Walker, M.D. Reprinted from the New York Medical Journal, 1895.

Proceedings of the Medical Examining Board of Virginia, First Semi-annual Session of 1895. Held in Richmond, Va., May 8 and 9, 1895.

Annual Report of the Department of Health of the City of Chicago for the Year ended December 31, 1894. Arthur R. Reynolds, M.D., Commissioner of Health. Chicago, 1895.

The Deformities of the Human Foot; with their Treatment. By W. J. Walsham, M.B., C.M. Aberd., F.R.C.S. Eng., and William Kent Hughes, M.B. Lond., M.B. Melb., M.R.C.S. Eng., L.R.C.P. Lond. New York: William Wood & Co., 1895.

Modern Methods in Cataract-operations. By J. O. Stillson, M.D. Pamphlet. Read before the Indiana State Medical Society, June 7, 1895.

Suprapubic Cystotomy for Calculus of the Bladder. By A. H. Meisenbach, M.D. Reprinted from the Journal of the American Medical Association, 1895.

The Right to Question Authorities and the Value of Medical Testimony. By James W. Keiser, M.D. Reprinted from the Medical and Surgical Reporter, 1895.

A Successful Case of Porro-Cesarean Section. (Modified.) By Hunter Robb, M.D. Reprinted from the Western Reserve Medical Journal, 1895.

The Annual Report of the Department for the Insane of the Pennsylvania Hospital for the Year ending Fourth Month 25th, 1895. Presented to the One-hundred-and-forty-fourth Annual Meeting of the Managers of the Pennsylvania Hospital. By John B. Chapin, M.D., Physician-in-Chief and Superintendent. Philadelphia, 1895.

Fourteenth Annual Announcement of the College of Physicians and Surgeons of Chicago. Session of 1895–96. Chicago: Published by the College, 1895.

Report of Cases of Brain-lesions—Abscesses, Meningitis, and Sinus-thrombosis—Resulting from Disease of the Middle Ear. By J. T. Eskridge, M.D. Reprinted from Medicine, 1895.

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# THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXVII. SATURDAY, OCTOBER 26, 1895. No. 17.

## ORIGINAL ARTICLES.

### REFLEX IRRITATIONS FOLLOWING EYE-STRAIN.[1]

BY DAVID H. COOVER, M.D.,

OF DENVER, COL.;

OCULIST AND AURIST TO THE UNION PACIFIC, DENVER AND GULF RAILROAD, DENVER, LEADVILLE AND GUNNISON RAILROAD, AND TO ST. ANTHONY'S HOSPITAL.

IN the last fifteen years the importance of the study of the eye in functional nervous diseases has been more and more recognized by the ophthalmologist, neurologist, and the general physician, who have side by side proved the importance of ophthalmologic examinations in general medical diagnosis. I do not pretend to say that all reflexes are produced by the eyes. Nevertheless the cases that I shall report will demonstrate that unsuspected eye-strain is frequently the true cause.

It is universally admitted that the pathologic conditions of the eye and other parts of the organism are in very intimate relation with each other. To overcome a strain requires an effort. A constant or ineffectual effort of any abnormal organ will produce strain, with the resultant irritation. It is, therefore, not at all remarkable that abnormal conditions of the visual organs should cause reflex irritations of so annoying a character as headache, vertigo, nausea, gastric disturbances, nervous irritations, and depressions, or even those of a more serious nature, as choreic, epileptic, and cataleptic forms of convulsions. When one considers the close relation existing between the delicate nerves of special sense and those of motion and sensation, besides the great vascularity of the optic apparatus, with the deep-seated nervous centers, it is readily understood why the true cause of such varied symptoms should be rendered obscure.

The eye is bountifully supplied with nerves and vessels having their origin in the brain; and, in connection with others, the sympathetic system produces through the organs of sight symptoms of irritation from one to the other. In congestions, inflammations, and growths in the brain there result from this close proximity changes in the anatomic and functional behavior of the eye. In tumors there is the choked disc or paralysis of some of the ocular muscles or suspension of the function of some part of the retina.

In congestion and inflammation of the brain there is the flushed disc and hazy retina, and, *vice versa*, ocular disease not infrequently extends to the brain. An irritation set up in a nerve gives rise to a variety of disturbances in one or more parts of the body, however distant from the seat of cause.

The normal or emmetropic eye can passively take in objects more than twenty feet away without an effort of accommodation. Anything closer requires a slight adjustment of its delicate mechanism, by calling into action the ciliary muscle.

One of the most distinguished botanists, James, an authority upon mosses, actually transformed his eyes to conform them to his studies by constant alteration of the natural focal distance. Sailors are proverbial for their ability to see long distances.

The eye is an important index to the practitioner in determining diseased conditions, both topical and systemic. The black eye of a brawl is so patent that its possessor must explain its cause to his friends, while the listless, expressionless eye of low fevers is an indication of excessive physical depression.

The defects that cause eye-strain are hyperopia, high grades of myopia, astigmatism, and insufficiency of the ocular muscles. Hyperopia is the "short eye." Here the refractive power is too low when the eye is adjusted for distance, and parallel rays of light are not brought to a focus upon the retina as in the normal eye, but behind it. The eye is never at rest except when it is closed, an effort of accommodation being called into action for distant vision. Hence, in looking at objects near at hand the demand upon the ciliary muscle is very great, and it has no chance to regain its power as in emmetropia. This muscle soon gives way and eye-strain becomes manifest.

It is not so in the myopic eye, the "long eye." Here the conditions are reversed. The refractive power is too high; the antero-posterior axis is too long, and parallel rays of light are brought to a focus in front of the retina. The effort of accommodation for distant and near objects is less than in the normal eye, so that very little eye-strain is experienced, except in high grades, when near work, such as reading, sewing, etc., requires very close use of the eyes. Then we find there is an extra amount of convergence, thus overtaxing the internal rectus muscle, which when weakened will give rise to fatigue, and reflex manifestations follow.

[1] Read before the Colorado State Medical Society, June 18, 1895.

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Astigmatism is a defect in which the refraction varies in the different meridians of the cornea, owing to the inequality of its curvature, or as a result of an imperfect lens or irregular contraction of the ciliary muscle. It is the greatest mischief-maker and produces more asthenopic symptoms than any other error of refraction. With this defect the strain is very great upon the ciliary muscle, as it must act very irregularly, as the eye always endeavors to obtain as distinct vision as possible.

To obtain binocular vision we must bring into action the ocular muscles, which play an important part in giving rise to various irritations and depressions. The muscles that control the movements of the eyes must act in harmony. If any one is at variance with the others, either from overwork, loss of power or other weakness, so that the equilibrium cannot be preserved, then it is that the demand is greater than the nervous supply, and the consequence is an inability to unite images upon corresponding points of the retina of each eye, and single vision is not maintained. If there is any disturbance whatsoever of the normal relation between the power of convergence and that of accommodation, there will be a strain upon one or the other muscle. The ciliary and recti muscles become weakened by being overtaxed, just the same as any other in the body; as a natural consequence, eye-strain with reflex irritation must follow. The following cases illustrate the various phases of my subject:

CASE I.—Maud F., aged fifteen years, was sent to me on June 4, 1887, by her family physician, with the following history: Five weeks before, while in school, she had been seized with a convulsion, was unconscious, and foamed at the mouth. She had five attacks after the first one. The aura consisted of pain in the head, dizziness, and blackness of vision, and after this she passed into a general tonic spasm, which lasted for five minutes. After steady use of her eyes at her studies or after much concentration she was subject to these seizures. They occurred usually at school or after school on her way home. She had constant frontal headaches and was sometimes very nervous. There was no nausea. The general health was fair.

Examination of the eyes revealed compound hyperopic astigmatism. The following glasses were prescribed for constant use: R. E. + 1. S. ⌒ + 0.50 C., axis, 180°; L. E. + 1. S. ⌒ + 0.25 C., axis 90°.

While wearing these glasses the girl had no attack. Unfortunately she lost them, and for five days was without the correction; during this time she had four attacks. Upon wearing the glasses again there was no return, nor has there been up to this time.

CASE II. Mary B., aged eleven years, consulted me, November 14, 1889. For a year before she had been complaining of headache, vertigo, and nausea, especially in the morning. She was very nervous and anemic. Her appetite was poor and she was restless at night. She had a short, hacking cough, which was increased by nervous attacks to which she was subject. Two months prior to consulting me she became suddenly unconscious, her body was convulsed, and she foamed at the mouth. This attack lasted about ten minutes; preceding it she became very nervous and suffered from severe headache. She had had, in all, seven attacks. They usually came on in the evening after school.

Examination of the eyes showed hyperopia of 2. D. in each eye. I ordered a correction of 1.50 S. for constant use. After the girl began wearing the glasses prescribed, headache and cough disappeared, and there was no return of the convulsions. The general health improved. Three months later the girl had one attack of convulsions. I then increased her glasses to full correction, which has given perfect relief.

CASE III.—Dr. M., aged twenty-eight years, a dentist, consulted me, November 3, 1889, on account of constant pain over the brows and nape of the neck. Objects became blurred while he was at work. The eyes were sensitive to light, and the man at times became very melancholy, so much so that he dreaded going to his office. He frequently contemplated suicide. He was restless at night, and his appetite was poor. He had complained of this condition for six months.

Examination of the eyes showed hyperopia of 1. D., with exophoria in accommodation of 3°.

The following glasses were ordered: + 0.75 for distance, + 1. S. ⌒ prism 1° in each eye for reading.

After wearing the glasses for one month the man was entirely relieved and was able to follow his profession.

CASE IV.—Miss L., aged nineteen years, consulted me, January 1, 1891. From her seventh year she had suffered from nausea in the morning, lasting for several hours; she then became faint and was compelled to seek a recumbent posture. She had no desire for breakfast, but if any food was taken she would vomit. By noon she would feel fairly well. Her general health was poor; she was extremely nervous and she slept poorly. Her parents had tried a variety of treatments without any relief.

Examination of the eyes revealed a high grade of compound hyperopic astigmatism.

The following glasses were prescribed: R. E. + 4.50 S. ⌒ + 2.75 C., axis 75°; L. E. + 4.50 S. ⌒ + 3.00 C., axis 105°.

These glasses were directed to be worn constantly. After wearing them a month the girl wrote me that her nausea had disappeared and that she could enjoy her breakfast with the rest of the family.

CASE V.—Mary S., aged twelve years, came for examination on April 20, 1884. She complained of headache, which was constant, and at times accompanied by nausea and vomiting. She was not able to attend school, as close application of the eyes always aggravated her headache. She had been under medical care for a year before consulting me. The girl was pale, without appetite, very nervous and restless at night, and suffered from palpitation of the heart.

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Examination revealed hyperopia: R. E. V. 20/20; L. E. V. 20/20.

Under the influence of atropin for seventy-two hours vision was 20/20, and the headache had ceased. With + 0.25 spherical the vision was as perfect as without. The spherical lens + 0.25 was ordered for constant use. The result was that the headache, nausea, and vomiting disappeared and the general health improved rapidly.

Case VI.—S. A., a young man, aged sixteen years, consulted me, February 13, 1891. There was no history of nervous tendency upon the part of his parentage. He had never suffered from headache or vertigo. The eyes were sensitive to light. Otherwise the lad had always enjoyed excellent health. He had been working very hard at school, and had first noticed that his right hand and arm began to jerk. The right corner of the mouth twitched, and there was a peculiar jerking gait of the right leg. It was difficult for the patient to keep the hand and foot of the right side quiet, except by a strong effort of the will, and even then any distraction caused motion of greater or less degree. These symptoms had been noticed for several weeks before the lad was sent to me.

Examination of the eyes showed simple hyperopic astigmatism.

The following glasses were prescribed: R. E. + 1.25 C., axis 90°; L. E. + 0.75 C., axis 90°.

These glasses were ordered for constant use. At the end of a week the twitching and jerking of the hand, mouth, and leg had materially lessened, and after a month all choreic movements were absent.

Case VII.—Miss G., aged twenty-two years, consulted me, April 1, 1894. She had been a sufferer from frontal headache for a year. The pain would pass through the temples to the nape of the neck. There were also nausea, constant twitching of the eyelids, and choreic movements of the muscles of the face. When very tired the girl stammered. This was more noticeable when she used her eyes at school. She was very nervous and sleepless at night.

Examination of the eyes showed exophoria at 20 ft. of 3°, in accommodation of from 4° to 6°; with simple hyperopic astigmatism.

The following glasses were prescribed:

R. E. + 0.25 C., axis 180°
L. E. + 0.25 C., axis 180° } for distance.

For reading a prism of 1° was added to the distant glasses. After wearing these glasses for two months the symptoms detailed wholly disappeared.

Case VIII.—Mr. P., an insurance-agent, aged forty-five years, consulted me November 23, 1892. He gave a history of having had a cough for twenty-five years, which was always worse in the evening and at night. During business-hours he had to cough more or less, but at night the coughing attack usually lasted until midnight. He never could lie on his right side. The cough was a very peculiar one, dry, hollow, and retching. There was no expectoration except after coughing for some time; then only mucus would be raised and relief followed for a time. The days the man was busiest in his office corresponded with the days and nights he coughed the most. He was told by his physician that the trouble came from his liver and stomach, and was treated accordingly. The greatest relief ever received was when he went away; his cough was then much less—but as soon as he returned to his office the cough came back. Living in the same house with him I studied the cough, and concluded that it was reflex, and told him that I thought his eyes were the cause. Naturally he laughed, but finally consented to have them examined. I found that he had compound hyperopic astigmatism, with 6° of insufficiency of the internal rectus in accommodation (exophoria). The defect was corrected and the following glasses ordered:

R. E. + 1. S. ◯ + 0.50 C., axis 180°
L. E. + 1. S. ◯ + 0.50 C., axis 180° } for distance.

R. E. + 1. S. ◯ + 0.50 C., axis 180°, prism 1° base in
L. E. + 1. S. ◯ + 0.50 C., axis 180°, prism 1° base in } for reading.

The glasses were worn constantly, and at the end of three months the cough had disappeared and he could sleep on his right side as well as on the left. He has had no return of the cough to the present time.

Case IX.—A. F., aged fourteen years, was sent to me by his family physician in April, 1888. During the preceding four months he had complained of attacks of blindness while at school. Preceding these attacks he had vertigo; then he would see red and then all became black before him. The eyes became fixed, and when spoken to the boy would not respond. The seizures were of short duration, and were repeated three or four times a day. After the attack there was headache.

Examination of the eyes showed hyperopia of 2.25 D., and + 1.50 S. was ordered for constant use.

On wearing the glasses no further trouble was experienced.

Case X.—Mrs. W., wife of Dr. W., aged fifty years, consulted me, December 26, 1894. She had been a constant sufferer from headache confined to the supra-orbital and temporal regions, with pain in the nape of the neck. She suffered also with dyspepsia for years, and her general health was poor. She was very nervous and irritable, and suffered at times from palpitation of the heart.

Examination of the eyes revealed simple myopic astigmatism.

The following glasses were ordered:

R. E. — 3 C., axis 165°
L. E. — 3 C., axis 30° } for distance.

This correction gave perfect vision.

R. E. + 2. S. ◯ — 3 C., axis 165°
L. E. + 2. S. ◯ — 3 C., axis 30° } for reading.

After wearing the glasses for three months the woman wrote me that she was perfectly well. Even the dyspepsia had disappeared.

Case XI.—Miss W., aged twenty-two years, consulted me, October 5, 1893, with the following history: In the preceding year she had been suffering with headaches over the brow, with pain in the nape of the neck, with vertigo and nausea, and was extremely nervous, sleepless at night, with the eyes

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sensitive to light, and confusion of objects at a distance. For the last two years she had suffered from dysmenorrhea.

Examination of the eyes revealed the following: Exophoria at 20 ft. of 3°, in accommodation of 12°, and compound myopic astigmatism.

The following glasses were prescribed:

R. E. — 1. S. ◯ — 2.50 C., axis 180° } for distance.
L. E. — 1.25 S. ◯ — 0.75 C., axis 60° } for distance.
R. E. — 2.50 C., axis 180°, prism 2° base in } for near.
L. E. — 0.50 S. — 0.75 C., axis 60°, prism 1° base in } for near.

The constant use of these glasses wholly relieved the symptoms, and menstruation became normal after the first month.

CASE XII.—Mr. W., aged thirty-six years, consulted me, November 30, 1883, with the following history: He complained of a glimmering before his eyes; then objects become indistinct and floating specks would appear before him. There were also vertigo and nausea, and the man would fall if he did not sit down. He had a sense of numbness in the hands, sometimes only in one, but more often in both. His tongue felt numb; his speech was thick, and he expressed himself differently than he intended. His mind was confused, though he never lost consciousness. He feared that he was about to lose his mind. Preceding these attacks the man suffered from severe headache. He had had two attacks a week in the preceding six months. He had gone six months without an attack, but this was when he was farming. He had lately been engaged in the grocery-business, and during this time had had the attacks more frequently. He gave up the grocery-business and became an attendant in an insane-asylum, thinking some day he would be one of the inmates.

Examination of the eyes revealed hyperopia of 1.25 D. Glasses were ordered: R. E. + 1. S.; L. E. + 1. S. On relief of the eye-strain the man became perfectly well.

CASE XIII.—Mrs. W., aged twenty-eight years, consulted me, July 1, 1894, complaining of frontal headache and vertigo. Her general health was fair, although her appetite was poor and she suffered from nausea. There was confusion of objects at a distance, and the woman was afraid to go on the street alone on account of this. She had a sense of numbness, beginning in the left hand and spreading over the body. She also had a sensation of sinking upon lying down and closing her eyes. She was extremely nervous. She slept very little and cried a great deal. It was impossible for her to use her eyes for near work.

Examination showed hyperopia 1.25, with exophoria, insufficiency of the internal rectus of 6° in accommodation, and left hyperphoria of from 2° to 4° at 20 ft.

The following glasses were ordered:

R. E. + 0.75 S.: L. E. + 0.75 S., prism 2° base down, for constant use. These glasses relieved the confusion at once, and exercise of the internal rectus was practised daily. The woman gained in weight, and at the end of a month was well.

CASE XIV.—Mrs. G., aged thirty years, consulted me, May 9, 1894. She had always been near-sighted. In the preceding six months she had been very nervous and irritable, and occasionally had fits of crying. She was unable to sleep at night, and complained by day of vertigo, nausea, and mental confusion. She had pain in the nape of the neck and down the spine. Her general health was poor, and she was losing weight.

Examination of the eyes disclosed compound myopic astigmatism, and exophoria of 6° at 20 ft., of 9° in accommodation.

For the correction of the defect glasses were prescribed:

R. E. — 3.50 S. ◯ — 0.50 C., axis 170°.
L. E. — 3.50 S. ◯ — 1 C., axis 45°.

These glasses were ordered for constant use, and ocular gymnastics were practised daily until the ocular equilibrium was established, when the symptoms named disappeared and the woman began to gain in weight.

CASE XV.—Mrs. L., aged forty-two years, consulted me, April 11, 1894. For six years she had complained of headache over the brows and through the temples. She had also pain in the nape of the neck, with vertigo and nausea. There was loss of memory and mental confusion. At times the woman had fits of melancholy and suffered from dyspepsia and palpitation of the heart.

Examination of the eyes revealed exophoria at 20 ft. of 10°, left hyperphoria of from 2° to 3° at 20 ft., of 1° in accommodation, and hyperopia of 1. D.

Gymnastic exercises with prisms were practised daily until the ocular equilibrum was established for 20 ft., and the left hyperphoria and hyperopia were corrected.

R. E. + 1 S.
L. E. + 1 S. Prism 1° base down.

In ten days after the treatment was instituted the woman began to improve, and so continued until she was entirely well. She is to-day in better health than she has been for years.

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## *SPONTANEOUS DISLOCATION OF THE HIP-JOINT IN CONNECTION WITH TYPHOID FEVER,*[1]

### *With Report of a Case.*

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THE hip-joint is one of the best protected of the larger joints. Owing to its construction, to its thorough support by ligaments and muscles, and above all to the pressure of the atmosphere, it is comparatively seldom subject to dislocation. Nevertheless, even spontaneous luxations sometimes occur, and there are certain individuals who possess the power of dislocating their hip-joints at will. The

[1] Read before the Colorado State Medical Society, June, 1895.

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great majority of spontaneous luxations appear in connection with some pathologic lesion, and are generally known as pathologic dislocations. Spontaneous dislocation would seem to be a better term, as in some cases disease of the joint is slight or absent; and, in addition, all dislocations are in a sense pathologic.

Spontaneous luxation of the hip may arise from: (1) Intra-articular effusion, with stretching of the ligaments and capsule, as may occur in typhoid, typhus, smallpox, scarlet fever, measles, erysipelas, diphtheria, puerperal fever, pyemia, dysentery, mumps, etc. (2) Destructive processes involving the head of the femur, the acetabulum, the cartilages, or all of these (tuberculosis, osteomyelitis, malignant growths, etc.). (3) Deformative processes (arthritis deformans, newgrowths, possibly rachitis). (4) Paralysis. (5) Trophic changes in the structure of the joint (tabes dorsalis, etc.). (6) Long-continued malposition of the lower extremity during some wasting malady, with relaxation of ligaments, etc., and without effusion or other joint-lesion. This has frequently been disputed, but Pitha claims to have personally observed eight cases, in one of which an autopsy was obtained. It is likely, however, that more or less effusion, perhaps temporary, generally exists, as it is otherwise difficult to understand how the atmospheric pressure can be overcome. (7) The deposit of granulation-tissue, etc., in the acetabulum, which forces the head of the femur from its position. König has observed this in the first stage of coxitis. Dislocations produced at will scarcely belong to any of these divisions, as they can be regarded neither as "spontaneous" nor as "pathologic."

In this brief paper I propose to consider spontaneous dislocation of the hip-joint in connection with typhoid, although the accident may take place with other continued and exanthematous fevers. It has been observed in adynamic forms of the disease, generally in male children, is an exceedingly rare occurrence, and attacks the right or left hip with about equal frequency.

In 1877 W. W. Keen, of Philadelphia, collected all the reported cases. Among 43 instances of arthritis due to continued fevers, there were 27 spontaneous luxations of the hip-joint, 15 of which could be definitely traced to typhoid, and 7 to typhus. The confusion in nomenclature that formerly existed as regards these diseases may have led, however, to inaccuracy in these figures. Dr. Keen informs me in a recent letter that he himself has seen but one hip-dislocation following typhoid. Most of our textbooks do not refer to the subject at all, or but very briefly, although its importance certainly warrants attention.

The phenomenon is clearly related to the arthritis that at times complicates typhoid. This arthritis is generally monarticular, but may be polyarticular, when it closely resembles acute rheumatism, with which it may easily be confused. Suppuration may occur, but often resolution takes place without the formation of pus. There is usually, however, considerable effusion within the synovial capsule, either serous, serofibrinous, or purulent. There may be more or less serious changes in the bones, cartilages, ligaments, etc. The ligaments and capsule are likely to be stretched and weakened, which is an important feature in the affection. Our data, however, lack accuracy, as no autopsies have been made in this connection. In view of the fact that the Koch-Eberth bacillus has repeatedly been found in the periosteal affections complicating typhoid, in medullary inflammations of bones, and in various other lesions, it is not unreasonable to suppose that arthritis may also be due to its presence, epecially as arthritis is at times secondary to a contiguous ostitis or periostitis. As has been demonstrated, other micro-organisms may find their way from the intestines into the joints, so that a mixed infection might easily occur. It is claimed by some, however, that the joint-affections of typhoid are always pyemic in their nature. In cases that recover without suppuration, perhaps the typhoid-bacillus alone may be present, as occurs in non-suppurative typhoid periostitis; or it may be that a mild infection with some other germ exists.

As to the way in which the dislocation takes place, most writers agree that the prime factor is overdistention of the capsule with fluid, which weakens and stretches the supports of the joint and forces the bones apart. (Bonnet and Parise have demonstrated that by injecting fluids into the semi-flexed hip-joint the bones may be forced apart from ⅛ to ¼ inch.) Then some slight wrench, such as turning in bed, or lifting the patient with a hand beneath the back and one beneath the thighs, causes the dislocation. Or the trouble may possibly take place gradually by a combination of overdistention and relaxation, with malposition of the limb and reflex muscular tension. The malposition consists usually in adduction, flexion, and inversion. Stimson adds clearness to the explanation by showing that the fluid that fills the capsule flows into the acetabular cavity as the head of the bone leaves it, thus preventing a vacuum and relieving the pressure of the atmosphere. The ligamentum teres is not necessarily ruptured. Moore has demonstrated that it may be sufficiently elongated by an intra-articular effusion to allow of complete dislocation. Paralysis or degeneration of muscles, as sometimes occurs from typhoid, may play a part in the accident.

As the luxation usually takes place during severe

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fevers, after the third week (Keen), when the patient is delirious or unconscious, it may not be observed at once—perhaps not until convalescence has set in and locomotion is attempted.

Whatever the mechanism of dislocation, it is nearly always upon the ilium near the sciatic notch, and is probably in most cases intracapsular. Sometimes the head of the bone is found higher up on the ilium; rarely beneath the anterior superior spine, and very rarely in the thyroid foramen. Keen cites four cases in which the femoral head was movable in all directions, showing great relaxation of the capsule and ligaments.

In most cases there is little or no pain in the joint at any time, while in some the pain is excruciating, although it may suddenly cease when dislocation occurs. It may be felt elsewhere than in the hip, even in the entire lower extremity, but it is rarely reflected to the knee as in coxitis.

The history of a typical case of typhoid-dislocation would be somewhat as follows: A child passes through a severe fever, accompanied by swelling of a hip-joint (it must be noted, however, that swelling in this deep-seated part is not always easily detected, even in an emaciated subject). While still in bed, or later on, it is noticed that one of the patient's legs is shorter than the other, usually from 1½ to 2 inches, especially when flexed at the hip, and that it is held in a position of partial flexion, adduction, and inversion. Keen mentions that owing to the extreme relaxation of the parts about the joint the limb may rarely assume other positions.

Without consideration of the symptoms and attention to the history, the affection may be mistaken for a late stage of ordinary tuberculous hip-disease, especially after a few weeks have elapsed and atrophy of the muscles with flattening of the nates and dropping of the gluteal fold has supervened. Hip-joint disease, however, does not come on suddenly, and its first stages are characterized by abduction and apparent lengthening, although dislocation may very rarely occur (König).

In the course of time the femur forms a socket for itself in its new position, and considerable mobility may be acquired, especially as regards flexion and extension. This is fortunate, as it is an exceedingly difficult matter in many cases to reduce the dislocation, owing to the joint-lesions and to frequent non-recognition of the trouble until firm fixation on the dorsum of the ilium has occurred. Even if reduction be accomplished, it is likely that it cannot be maintained.

In the recent *Traitè de Chirurgie*, by Reclus and Duplay, Lagrange mentions but two cases of reduction of typhoid-luxations, one by Lannelongue and one by Capelle. In Lannelongue's case prompt recurrence ensued, while in Capelle's the bone remained in place. Keen, however, says that reduction was accomplished in 11 of the 27 cases due to continued fevers in general, but that it is always difficult and often impossible if not attempted at once.

The prognosis as regards restoration of the joint to its normal condition is absolutely bad according to Lagrange, although Keen refers to but 2 cases in which recurrence of the dislocation took place.

The treatment should consist in a prompt attempt at reduction under anesthesia. Delay is perhaps more dangerous than with ordinary dislocations, for the pathologic lesions may lead to rapid and embarrassing alterations. But however long the trouble may have existed, an attempt should always be made to correct it. Pitha mentions a successful reduction of a spontaneous dislocation of the hip from rheumatism after the lapse of six years. Manipulation should be thoroughly tried, having regard to the fact that the bones of children are more fragile than those of adults, and that an epiphysis may easily be separated. It is advisable to first loosen up adhesions, if any be present, by flexion and extension of the thigh, combined with careful rotation. A fracture may perhaps be avoided, as suggested by Pitha, by grasping the thigh close to the joint, and not employing the flexed leg as a lever.

In case these efforts fail, it would certainly be justifiable to open the joint, clean out the acetabulum, sever the adhesions, and replace the luxated bone, although few attempts have been made in this direction.

If there is a tendency to recurrence after reduction, retentive splints may be employed, or, better still, extension by weight and pulley. It is perhaps a wise precaution to apply extension for a time in any case. If these measures fail, an arthrodesis would be in place. There is no reason, in these days of aseptic surgery, why a dislocation should remain unreduced without operative interference. Lannelongue has obtained the production of new bone about the defective rim of the acetabulum by the deep injection of his 10 per cent. solution of zinc chlorid.

Keen suggests, as a prophylactic precaution in cases of typhoid when there is reason to fear luxation, that the suspected limb should be confined in a position of abduction and eversion.

Considering that we cannot know how extensive the joint-lesion may be, or of what character, it is wise to maintain fixation of the limb for several weeks by extension, by splints, or at least by tying the knees together. The patient should not be permitted to walk for 6 or 8 weeks, and in some cases not for a longer time. It would seem best that the first attempts at locomotion should be made on crutches, with an elevated shoe on the foot of the sound leg,

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thus avoiding the bearing of weight upon the affected member and giving ample time for the repair of a possibly defective acetabular rim. Cautious passive motion can be instituted in 2 or 3 weeks in order to prevent stiffness or ankylosis.

The case I desire to report in this connection was that of a girl of 10, who developed well-marked typhoid fever about the first of February, 1895. She was placed in the competent care of Dr. Heimberger, of Leadville, Colorado. She was a well-developed and well-nourished child, in excellent health, and with normal lower extremities. Symptoms of meningitis were prominent during the height of the disease, with delirium and at times marked stupor. Near the end of the third week the temperature in the rectum arose rapidly to 110° and as rapidly fell again. Paralysis of both lower limbs, involving sensation and motion, but lasting only 2 or 3 days, occurred during the fourth week. Following this there developed tenderness along the femoral veins. During the end of the fourth and beginning of the fifth week slight pain, tenderness, and swelling manifested themselves in the right hip, followed shortly by similar symptoms in the left. Much pain was felt in the tendons beneath the knees, especially when attempts were made to straighten the limbs, and it seemed to be due to contraction of the posterior muscles of the thighs. Marked emaciation occurred, and some small bedsores appeared on the sacrum.

The child left its bed in between 6 and 7 weeks, and it was not until then that any decided trouble with the hip was noticed, although it had been observed that something was wrong during the latter portion of the illness.

When the child came under my observation on April 25th, 9 or 10 weeks after the probable date of the accident, she was emaciated and peevishly irritable. The left lower limb was partially flexed on the pelvis, strongly adducted, and rotated inward. There was from 1½ to 2 in. actual shortening, when the thighs were flexed at a right angle with the pelvis. There was ½ in. difference in the circumference of the thighs, showing atrophy of the muscles to that extent. The gluteal mass was also atrophied and the gluteal fold shallow and depressed. In fact, there was a dislocation of the femur on the ilium near the sciatic notch. The case presented a marked resemblance to the third stage of coxitis, which we at first supposed it to be. There was no tenderness, however, about the hip, either on strong percussion or on decided manipulation. Neither was pain developed by forcibly striking the heel on the affected side. The popliteal tendons, however, were very tender, and much pain was aroused by attempts to straighten the knee.

I diagnosticated a "typhoid-luxation," and placing the child under an anesthetic an attempt at reduction was made, with the assistance of Drs. Hawkins and Heimberger. Flexion and extension of the thigh were possible, but absolutely no adduction. The head of the bone could be felt grating against the ilium while breaking up the adhesions. Considerable force was necessary during the manipulation, although reduction was accomplished at the second or third attempt, no sudden "snap" being perceptible. As soon as the bone was replaced, all the motions of the joint returned to normal, including abduction. There remained, however, a slight prominence of the great trochanter and a shortening of the limb, amounting to less than ½ in. The latter was afterward found to be manifest throughout the entire member, including the leg and foot, and was probably the result of a lack of growth during the time the dislocation was present. I have not found this symptom mentioned except in the account of a case of spontaneous luxation of the hip following puerperal fever, described by Baker. In fact, Keen states that the leg after reduction of the dislocation may be longer than its fellow. As a precautionary measure an extension of 4 or 5 pounds was kept on the leg for 2 weeks, after which the knees were simply tied together at night for another fortnight. All pain and irritation rapidly disappeared, and within 48 hours the child was perfectly comfortable, and free from the sharp pains previously caused by sudden contractions of the posterior muscles of the thigh.

Passive motion of the knee and hip was begun about the fourth week. The marked weakness and atrophy of the muscles were slowly overcome by massage and electricity, and by the sixth week the patient was sitting up and moving her limbs about with considerable ease and comfort, the power of flexing the thigh upon the pelvis, however, being but slight, with much general weakness of the muscles of the entire limb. The length of the left limb, as compared with that of the right, had in the meantime slowly increased until the difference was scarcely appreciable. At the end of ten weeks the child was walking fairly well, although sufficient weakness and stiffness remained to give rise to a marked limp.

At the end of five months the limp has markedly decreased, although stiffness of the joint is still present. The limb is strong enough to permit of the most active exercise, but is somewhat less than half an inch shorter than its fellow and somewhat less in circumference.

In the case detailed, the luxation probably took place during the third or fourth week, being due to an arthritis of the left hip-joint, aided by malposition of the left limb as the child lay on her right side. Paralysis may have aided in the accident, as did certainly general weakness and relaxation.

## LYMPHOID HYPERTROPHY AT THE BASE OF THE TONGUE AS A CAUSE OF THROAT-AFFECTIONS, ESPECIALLY IN SINGERS.

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Lymphatic glandular hypertrophy as a cause of many throat-affections is well known to all laryngologists. All lymphatic tissue in the oropharyngeal



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and laryngeal cavities is a part of the lymphatic system recognizable in enlarged glands at the side of the neck and its contiguous parts. When we have amygdalitis the enlargements sometimes felt below the angle of the lower jaw are not always the tonsils themselves, but lymphatic glands in close relationship with this focus of inflammation. If one will take the trouble to dissect thoroughly the mouth, pharynx, nasopharynx, and larynx he will find a circle of glandular lymphatic tissue embracing the glands at the base of the tongue, extending up on the side by means of the tonsils, and united above either in adenoid vegetations or glandular hypertrophy, known as the third or Luschka's tonsil. The subject of tonsillar hypertrophy long ago received exhaustive study at the hands of some of the best physiologists and clinicians, among whom must be mentioned Professor Harrison Allen, of Philadelphia, who has published a most excellent article in *The American Journal of the Medical Sciences*, January, 1892.

The subject of adenoid vegetations in the nasopharynx has also been voluminously considered, and justly so, since the great importance has been established of recognizing and treating this condition in aural affections, especially in children. When these enlargements are centered at the apex of the nasopharynx, and especially as this form (which probably in childhood constituted the so-called adenoid vegetations) is recognizable in adults, it is usually termed hypertrophy of the third or Luschka's tonsil, and as such is capable of giving rise to many nasopharyngeal diseases. This subject has been very excellently treated by Prof. Fletcher Ingals, of Chicago, in a paper read before the American Medical Association two years ago.

The subject of glandular hypertrophy at the base of the tongue has not been so frequently written upon, nor has it received the attention that I think it deserves in the causation of many reflex laryngeal troubles. In none of the textbooks have I been able to find more than a mention of the subject. Lennox Browne, who is a very close and accurate observer, besides being an explicit writer, only mentions it as an anatomic point, without dwelling upon it as a causative factor in laryngeal troubles. Dr. Gleitsman, of New York, has been among the first to recognize this hypertrophy at the base of the tongue as a truly pathologic condition, and he has written some excellent articles on this subject.

As we know, there exists normally at the base of the tongue certain large papillæ, known as the circumvallate papillæ, whose presence and position must be distinguished from the true lymphoid or glandular tissue that occurs nearer the epiglottis and is especially prominent at the sides of the tongue. In every individual there exists a certain amount of this glandular tissue, but it is only when it becomes considerably hypertrophied that it can be considered pathologic. Normally there should be a free space existing between the epiglottis and the base of the tongue. In other words, when the epiglottis touches any enlarged lymphoid tissue at this point as seen in the natural laryngoscopic image there is an abnormality.

Coursing over the base of the tongue, usually between the lymphoid tissue and the papillæ, can always be seen numerous veins, and frequently they become so numerous as to form what is known as a "lingual varix," and in that case are said by Lennox Browne to be productive of many reflex laryngeal troubles. According to my observations the lymphoid glandular hypertrophy in the same position is productive of far more disagreeable symptoms than the so-called "lingual varix."

Lymphatic glandular hypertrophy is well known as a condition most frequent in childhood, and, as this glandular tissue is nothing more than a part of the chain in the general lymphatic system, it would be very natural to suppose that this pathologic condition would be especially common at this age. We know that tonsillar hypertrophy and adenoids are almost without exception most frequent among children, and that these same conditions decrease perceptibly after the age of puberty. Cases have been reported in which adenoids have spontaneously disappeared—a statement by all means questionable. It is certainly true that with age hypertrophied tonsils become smaller, and I have also noticed that this was most marked when the general system is likewise undergoing improvement. It may be that this lingual lymphoid hypertrophy is most common in childhood, but as we are seldom able to obtain a laryngoscopic image before the child has reached the age when he or she may be controlled, my own experience has been that it is a condition rather of adult life. Certain it is that this condition seldom gives rise to any reflex trouble until the individual is old enough to have begun some occupation. This hypertrophy is almost always coexistent with hypertrophy to a slight degree of the faucial tonsils. When this lymphoid tissue is very much enlarged it presents a perfect resemblance to the true tonsils, as was shown in one of my cases, in which crypts filled with white, cheesy substance were present, resembling in every respect the true tonsillar formation.

According to my observation, which, I think, is in accord with that of other observers on this subject, the glandular hypertrophy at the base of the tongue is much more frequent in women than in men. This is probably due to the occupation of the individual, as, almost without exception, it is found in the throats of those who sing—or attempt

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to sing—and as this accomplishment is more universally confined to women, it is but natural to expect that the gentler sex should be more universally afflicted.

Of the four cases I present, three were in singers, and all were in women except one. The number of cases is of course not sufficient to draw from them any statistical results or definite conclusions, but they are recorded because of the prominence of the objective manifestations and subjective symptoms present. Of course there are many cases in which glandular hypertrophy in this position does not give rise to any uncomfortable symptoms, just as we find is the case in other departments of medicine, but when this condition does exist, and at the same time certain other symptoms, clinical experiences teach us to class the two together.

While I was in New York, my friend, Dr. R. C. Myles, showed me a number of professional vocalists whom he then had under treatment for this condition, and it was he who first called my attention to the importance of this glandular hypertrophy as a cause for many reflex symptoms in the throats of singers. The symptoms to which this condition gives rise are varied and for the most part subjective. To enumerate them all is beyond the scope of this article, but some of the most prominent I shall merely mention. They are:

1. A sensation as if a foreign body were present in the throat, not disappearing on deglutition.
2. A feeling of constriction around the throat at the upper portion of the thyroid cartilage.
3. An occasional reflex irritable cough.
4. Constant endeavor to clear the throat.
5. Laryngeal fatigue quickly coming on after using the voice either for talking or for singing.
6. Occasional hoarseness and many other subjective sensations too numerous to mention. I give in a succinct form the histories of the cases and the treatment used in each:

CASE I.—Jennie A., nineteen years old, came South on account of throat-trouble. She had been a sufferer for the last 2 years, especially during the winter season. Her symptoms were a constant soreness of the throat on the slightest exposure, and hoarseness even with moderate use of the voice. There was a feeling of constriction around the larynx, and a constant endeavor to get rid of something filling up the throat. She was very fond of singing, though not a professional vocalist. Upon examination I found chronic granular pharyngitis; the tonsils were slightly enlarged, but there were marked degenerative changes in the tonsillar crypts. On making a laryngoscopic examination decided lymphoid hypertrophy could be seen at the base of the tongue. There was some congestion of the larynx. The treatment consisted for the first few days in relieving the congestion by sprays and producing a more healthy condition in the tonsillar crypts. Later the tonsils were reduced in size by destroying the crypts with the aid of the electro-cautery. The granulations were removed by the same means, as also the glandular hypertrophy at the base of the tongue. Under a month's treatment entire comfort was afforded the patient, which she writes has continued to the present time—now two years.

CASE II.—Mr. C. E., twenty-five years old, consulted me in December, 1893, for some catarrhal affection of the nose, which in some way seemed to interfere with his singing. On examination I found large hypertrophies of both inferior turbinates, with a septum-ridge on the left side. Under the electro-cautery and sprays this condition was entirely relieved, so that he has never experienced any more discomfort from that source. The ridge was not removed, for I do not believe in destroying the mucous membrane unless it is absolutely necessary for the production of free nasal respiration. One year later the patient returned complaining that his throat felt continually "filled up," and this could not be relieved by any exhalation of expectoration. On laryngoscopic examination I found marked glandular hypertrophy at the base of the tongue, and the nodules coated with mucus. Under 4 applications of the electro-cautery and sprays the patient has remained entirely relieved, with a great improvement in the quality and strength of the voice.

CASE III.—Mary M., forty-five years old, a cook, was sent to me with a note from the lady of the house saying that I must do something for Mary, or she would lose the best cook in the world. The woman had great difficulty in breathing, because the throat felt entirely closed. She was continually, but vainly, trying to get rid of something there. She had been treated for some time with sprays, gargles, etc., without any relief of the symptoms. On examination I found marked hypertrophy of the lower turbinates of the nose. On making a laryngoscopic examination there was found a condition of affairs I had never seen. The faucial tonsils, instead of remaining in their natural position, seemed to have spread across the base of the tongue. This glandular hypertrophy was so large as to give scarcely any room for the movements of the epiglottis. The whole mass resembled good-sized tonsils. The treatment consisted in reducing the intranasal hypertrophy by means of the electro-cautery, and the removal of the glandular hypertrophy at the base of the tongue, with both the cold-wire snare and the electro-cautery. The treatment extended over a considerable period of time on account of the size of this glandular mass, but with the final result of relieving all the symptoms from which the patient formerly suffered, and restoring the parts to a more natural appearance.

CASE IV.—Mrs. H , thirty-three years old, a great vocalist, had suffered for years with her throat on account of a sensation as if there was a foreign body present. She was very nervous and hysterical. On laryngoscopic examination I found, in addition to some congestion, a glandular enlargement of the

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base of the tongue. This was cauterized with the electro-cautery, thereby doing away entirely with the symptom as if a foreign body were present.

This condition of lymphoid hypertrophy at the base of the tongue is by no means uncommon. Sometimes it does not produce any unpleasant symptoms by its presence, while in others it is an important factor. The diagnosis is easy, and yet I have been surprised to find how often it has been overlooked by good laryngologists, or if recognized at least ignored. In all cases in which singers consult me for throat-troubles, I never feel sure of a thorough diagnosis until the base of the tongue has been thoroughly explored.

## CLINICAL MEMORANDA.

### A CASE OF AKROMEGALY.[1]

BY AUGUSTUS A. ESHNER, M.D.,
OF PHILADELPHIA;
ADJUNCT PROFESSOR OF CLINICAL MEDICINE IN THE PHILADELPHIA POLYCLINIC.

THE pathology of the disorder first systematically described by Marie in 1886, and by him designated akromegaly, is yet an unsolved problem. The report of an individual case may therefore prove not without interest, if not profit. Besides, the case about to be detailed presents a feature not uncommon as a part of a number of diseases of the nervous system, but hitherto not frequently if at all described in connection with akromegaly.

J. S. S., a native of Scotland, thirty-six years old, and a blacksmith by occupation, presented himself at the Polyclinic complaining of pain and weakness in the shoulders and knees, which had been present for three weeks, and from which he had suffered from time to time during the preceding two years. The pain was at times so severe as to disturb sleep. The patient's appearance was at once striking. He was a tall man, and stated that he had always been unusually large. Close questioning only succeeded in eliciting the doubtful information that at the age of eighteen years the man was larger than an older brother was at the same age, and that he had "continued to grow until he was twenty-five." Photographs taken during this interval show the characteristic enlargement of the face. The man has three children, and these he thinks are also large. Upon further inquiry the patient stated that he had slight shortness of breath. He had, however, no derangement of vision, and not until the day before coming under observation had he complained of headache, and this was referred to the sagittal suture, and soon passed away. Memory and intelligence were preserved.

On inspection the man presented the characteristic elongated face, large forehead and nose, prominent zygomata, and massive and protruding lower jaw. The lower lip was relatively thick, and the tongue was broad and flabby. The hair of the head was coarse and rather dry; the ears small. There was a fair growth of hair on the pubes and in the axillæ, but little on the thighs and legs and arms and forearms, and almost none on the chest. The teeth were small. The hands were broad, the fingers thick and somewhat elongated. The nails presented no abnormality. A peculiar palmar curvature of the little finger was ascribed in the one hand to the use of the hammer, and in the other to the use of the tongs. The grasp of the hands was relatively impaired, in greater degree upon the right. There was some enlargement of the distal extremities of the radii and ulnares.

The following measurements were made:

| | Right. | Left. |
|---|---|---|
| Circumference at the styloid process | 8⅝ in. | 8¼ in. |
| Circumference around body of hand | 10¾ " | 10¼ " |
| Circumference around knuckles | 10¼ " | 9¾ " |
| From wrist to tip of middle finger | 8 " | 8 " |
| Circumference of second phalanx of middle finger | 3⅜ " | 3¼ " |
| Circumference of first phalanx of thumb | 3¾ " | 3⅝ " |

The feet did not appear to be unduly long, but rather broader than normal; nor had the patient been required to obtain shoes of progressively increasing size. The great toe of either foot was notably large. The heels projected backward conspicuously.

These measurements were noted:

| | Right. | Left. |
|---|---|---|
| From the heel to tip of great toe | 10⅞ in. | 11 in. |
| Circumference at ball of toe | 10¾ " | $10\frac{3}{16}$ " |

There was some impairment of motility in the upper extremities, partly from pain and partly from weakness. The myotatic irritability was preserved. Movement at the shoulder-joints was attended with palpable grating, as if from the rubbing of thickened and roughened synovial membrane. In standing erect the forearms were held at an obtuse angle with the arms, in more pronounced degree upon the right. Both knees were tumid, though not discolored, and on palpation yielded a sense of elastic tension, as if from an increase of fluid in the synovial sacs of the knee-joints. The knee-jerks were preserved, deliberate, and reinforcible. The veins of the legs were varicose, particularly upon the left.

The chest protruded forward, was rather barrel-shaped, and appeared distorted. The scapulæ were quite enormous. There was slight right lateral curvature of the spine, but no considerble kyphosis. The circumference of the chest at the nipple-line, at rest, was 40¼ inches; after deep inspiration 41⅜ inches. The apex-beat of the heart was conspicuous in the fifth interspace within the nipple-line, but the action of the heart was rhythmic and its sounds clear. No dulness could be detected at the upper part of the sternum, corresponding to the situation of a persistent thymus gland. The thyroid and cricoid cartilages were enlarged and firm. The isthmus of the thyroid gland could be felt, and the lateral lobes seemed to be present and of ordinary size.

Below the costal arch on either side laterally, about 2½ inches from the median line, was a slight tumefaction, apparently due in part to soft structures, and in part to a bony protuberance beneath, and thought to be an enlarged floating rib. A similar (fatty) mass was seated in the upper part of the left gluteal region. On

[1] Report and presentation made to Philadelphia County Medical Society, October 23, 1895.

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the anterior aspect of the right side of the trunk, in the mammillary line, below the costal arch, was a depression corresponding to the situation in which it is customary for the blacksmith to hold the horse's leg in shoeing. The relatively small abdomen was protuberant and presented a constriction through the epigastrium, corresponding to the situation where the apron was tied. There was a notable disproportion between the size and the muscular development.

An examination of the eyes was made by Dr. J. T. Carpenter, who reported that vision, ocular movements, pupillary reflexes, and visual fields were normal. There was no nystagmus. The nerve-heads were horizontally oval, and normal in color and capillarity. The fundus presented no lesion. The refraction was abnormal by possibly 1/2 D. of hyperopia.

The urine was of acid reaction, had a specific gravity of 1028, and contained neither albumin nor sugar. The patient gave his height as 6 feet 1¼ inches. Strontium salicylate, in doses of gr. xv every three hours, mitigated the severity of the pain, while the headache appeared to be rather aggravated by the administration of thyroid extract, gr. v thrice daily. Under local applications of tincture of iodin, with ointments of mercury and belladonna, the swelling of the knee-joints subsided appreciably.

The features in this case that strike me as peculiarly interesting are the disparity between the weakness and the slightness of muscular development on the one hand, and the great size and the laborious character of the patient's work on the other hand; the peculiar deflection of the forearms as related to the arms; the absence of headache, eye-changes, and of other intracranial pressure-phenomena; and more especially the arthropathies.

The prevailing conception of the pathology of akromegaly associates the complex of symptoms with a morbid state of the pituitary body, in the same way as myxedema is considered to be due to derangement of the function of the thyroid gland—either through sending into the circulation certain toxic products of abnormal secretion, or withholding from the circulation some product of secretory activity capable of neutralizing certain other toxic matters. The pituitary gland, however, has not always been found enlarged; and a case has been reported by Packard[1] in which the pituitary body was after death found to be enlarged, while during life there existed blindness but none of the symptoms of akromegaly.

Recently the view has been propounded that the pituitary body represents a center controlling nutrition, and the removal of whose functional influence, it may be inferred, results in abnormal growth.

A French writer[2] has recently reported three fatal cases of akromegaly, all of which presented after death pathologic changes in the pituitary body. He raises the interesting question whether such changes may not really be secondary, representing a part of the effects due to a disturbance of higher centers governing the nutritive equilibrium.

[1] Transactions of the College of Physicians of Philadelphia, 3d ser., vol. xiv, p. 6.

[2] Dallemagne: Archives de Médecine Expérimentale et d'Anatomie Pathologique, 1895, No. 5, p. 589.

## SARCOMA OF THE LARYNX. LARYNGECTOMY BY AN IMPROVED METHOD. RECOVERY.

BY JOHN A. THOMPSON, M.D.,
OF CINCINNATI, OHIO.

J. F., 35; formerly a blacksmith; unusually well-developed and very muscular; had had but one severe illness in his life before the present trouble, an attack of pyemia when he was 12 years of age. He has always been sober and temperate in his habits, with the exception that he smoked excessively. He has been on the police-force for 9 years; 8 years as a patrolman and 1 as a detective. The gymnasium-exercise required of the members of this force has kept him in splendid physical condition. I examined the man for the first time, June 20, 1895. At that time a large, pale-pink, lobulated tumor completely hid all parts of the larynx except the epiglottis and the membrane over the left arytenoid. He was very hoarse and suffered from dyspnea and dysphagia. The lymphatic glands were not involved. A portion of the tumor that projected above the right ala of the thyroid could be felt externally. The trouble had begun 6 months previously. The first symptom noticed was a scratchy sensation where the tumor now lay. He had had some cough, but it was never very bad. The growth was not painful except after prolonged exposure to the night-air; after running, the resultant coughing would cause the throat to ache. Dyspnea after exercising soon appeared. Pain and difficulty in swallowing had been felt for about four months. Two months previously the dyspnea became so severe as to interfere with his sleeping. There had been occasional slight hemorrhages of bright, fluid blood. There was also a free discharge of mucus from the throat. He has had occasional attacks of choking. He has had no pain in the chest.

The patient was told the growth was probably sarcomatous; the throat was anesthetized with cocain the first day I saw him, and three large pieces of the growth broken off with laryngeal forceps to give him room to breathe with comfort, and to obtain specimens for microscopic examination. There was but little hemorrhage and almost no pain resulting from the removal through the mouth. A portion of the growth sloughed in the next few days from the injury done by the forceps and was expelled by coughing. The microscopic examination was unsatisfactory. From the specimens mounted it could not positively be determined whether the growth was syphilitic or sarcomatous. To give the patient the benefit of the doubt, although there was no trace of specific trouble, he was put upon antisyphilitic treatment. At intervals of about a week, as soon as the wound from one operation would heal, successive portions of the growth were removed in order to obtain, if possible, some satisfactory specimens for microscopic examination. The dyspnea and difficulty in swallowing were much relieved by this course of treatment. The patient slept better and his general condition temporarily improved. A specimen finally obtained from the right ventricle of the larynx clearly showed the growth to be sarcomatous in nature. By this time the iodin-eruption from the internal medication had appeared, and I determined to give the patient the benefit of the clinical test and left the throat alone for one week. Although

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fully under the influence of antisyphilitic remedies, the growth of the tumor was so rapid as to completely fill the larynx in ten days.

Laryngectomy was advised and agreed to and the operation was performed at the Cincinnati Hospital, July 31, 1895. As the plan of procedure adopted differs materially from the ordinary operation of laryngectomy, I shall describe the steps of the operation in detail. The patient was anesthetized in the usual way. When unconscious, the pillow was taken from under his head and the foot of the operating-table raised so that gravity would aid in preventing the entrance of blood into the bronchi. A vertical incision was made in the median line from over the hyoid bone to the thyroid gland. The superficial cervical muscles were separated by blunt dissection. I had intended to remove the perichondrium with the muscular attachments on the left side of the thyroid cartilage, but, finding the cartilage softened by the growth so that this could not be done, I cut loose all the muscles attached to the thyroid on both sides back to the posterior margin of the wings of the cartilage. A short transverse incision over the hyoid was necessary to give sufficient room. The ligaments of the cricothyroid articulation were next cut. A high tracheotomy was then made and a sterilized sponge inserted above the tracheotomy-wound. After the tracheotomy was made and the upper portion of the trachea packed, the anesthetic was administered by means of a funnel with gauze tied over the bell-portion. The funnel was connected with the tracheotomy-tube by a piece of stiff rubber tubing. The only difficulty experienced in giving the anesthetic in this way was that mucus would be coughed into the tube and it had to be removed occasionally for cleansing.

Sarcoma of the larynx after exsection. Viewed from behind.

The thyrohyoid and cricothyroid membranes were next divided. The superior cornua of the thyroid were dissected out. The origin of the lateral cricoarytenoid muscles of both sides was dissected loose from the cricoid. The arytenoids were disarticulated from the cricoid and the attachment of the cricoarytenoideus posticus cut. The ligamentous and membranous attachments along the margins of the thyroid were cut and the larynx removed. A small rubber tube was next put through the nose and into the esophagus. The margins of the inferior constrictor muscles were then stitched together from side to side, making a continuous passage from the base of the tongue to the esophagus. The skin over the upper portion of the wound was next sutured. The tracheotomy-tube was removed from the wound and inserted through the opening of the cricoid. The lower portion of the wound, including the tracheotomy-wound, was then closed. The ordinary dressings were applied and the patient put to bed in good condition.

The greatest difficulty experienced during the operation was from the free bleeding; all the parts around the larynx were intensely congested and the arteries and veins so dilated that numerous ligatures had to be applied in order to keep the field of operation clear enough for careful and accurate dissection. The time required to complete the operation was 2½ hours. The patient rallied well after the operation. Water was given through the tube in the esophagus to relieve the patient's thirst within 3 hours after the operation. Small quantities of hot liquid diet were also administered at frequent intervals to aid in recovery from shock. A half-ounce of whisky and a drop of a 1 per cent. solution of nitroglycerin were also given for the same purpose. This dose repeated once was all the medication of any kind given during his convalescence. There was some bronchitis with considerable cough and a rather profuse mucopurulent expectoration for 4 days after the operation. It was never severe enough to be the cause of any anxiety, as the patient's temperature never exceeded 101° F. His febrile attacks occurring in the afternoon rarely lasted more than 3 hours. The pulse-rate and the respiration were both rapid for about a week. This was due in all probability to the loss of blood and the prolonged anesthesia.

Most of the wound healed by first intention, but, owing to the large number of ligatures in the wound and to infection from the mouth, the upper portion of the wound reopened. A more serious feature was the failure to secure union of the inferior constrictor muscle by first intention. This failure left a direct communication between the trachea and the pharynx, so that on any attempt at swallowing the greater portion of the nourishment would enter the trachea and only a small portion the esophagus. If the wound was packed with gauze so as to close this opening the interference with the muscles of deglutition was so great as to make swallowing impossible. For the first 5 weeks nourishment had to be given through the rubber tube.

On the fourth day after the operation I removed the tube that was placed through the nose into the esophagus in order to clean it. A great deal of difficulty was experienced in replacing the tube, and it was not again removed until it was expelled spontaneously one night during my absence from the city. By this time the nose had become so sore that the tube could not well be tolerated, and, after a number of attempts to replace it had been made, Drs. Oliver and Castle succeeded in passing it into the esophagus through the upper portion of the external wound.

Five weeks after the operation the opposed surfaces had united by granulation and the patient was able to swallow semisolid food. The tube was then withdrawn from the wound and the upper portion immediately closed.

It will be observed that the cricoid cartilage was not removed in this operation, as is ordinarily done in laryngectomy. There were several reasons for adopting this course. There was no reason for taking it out, as neither the cartilage nor the membrane over it were involved in the malignant growth. Removing the cricoid destroys the support of the anterior longitudinal fibers of the esophagus. The inferior constrictor of the pharynx is also attached to the upper posterior portion of the cricoid, and one of its supports would be need-

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lessly destroyed by removal of this cartilage. The danger of buttonholing the esophagus in dissecting the cricoid out is by no means a slight one. There is no slipping down or recession of the trachea if the cricoid is not disturbed. There was no necessity in this operation for stitching the walls of the trachea to the adjacent muscular tissue. The parts preserve their normal relations and the muscles of deglutition are much better able to perform their functions if the cricoid is not disturbed.

It will be noted, too, that the tracheotomy was made comparatively late in the operation, after most of the tedious dissection had been done. No apparatus for administering chloroform through the tracheal wound is very satisfactory. If sufficient pressure is maintained within the trachea to prevent the flow of blood into the bronchi, respiration is seriously interfered with. It is a distinct gain in the prevention of inspiration-pneumonia to open the trachea as late as possible, after most of the dissection has been completed and the bleeding stopped. In this case there was no more bloody expectoration than we expect to find after a tracheotomy. The position of the patient, with the head lowered and the foot of the table elevated, also aided in this result. At no time during the convalescence could even the smallest point of consolidation be found in either lung.

By giving a varied and liberal liquid diet, consisting chiefly of sweet milk, buttermilk, and beef-juice, the patient's strength had been maintained, although he lost some weight. So soon as solid nourishment could be taken he began to gain rapidly.

Laryngoscopic examination shows at the present time, internally, only a smooth cicatrix sloping back to the opening of the esophagus. Externally, we have a healthy cicatrix. The tracheotomy-tube has been worn since the hour of operation through the opening of the cricoid and has given the patient no trouble.

## CEPHALHEMATOMA WITH CEREBRAL HEMORRHAGE.

BY T. W. KEOWN, A.B., M.D.,
OF BALTIMORE, MD.

M. M., a strong and vigorous primipara, aged thirty-three years, of Irish parentage and medium height, and in good robust condition, was delivered of a female baby on July 13th, after a labor of twenty hours. The pains were normal in general, but owing to a rigid perineum they became very forcible toward the end of the second stage. The child weighed six-and-one-half pounds, and appeared in fairly good condition. Its circulation and respiration were normal. The caput succedaneum was not noticeably larger than would naturally have been expected in such a case. On the second day the child attempted to nurse and seemed to be as much alive as any other child of the same age. On the night of July 14th it became restless, and cried almost continuously in a low, feeble, whining manner. On the morning of July 15th it was much weaker, seemed to be wasting away, and was decidedly anemic-looking. The mother related that the baby had had fits, one of which occurred in my presence. The eyes of the child were rolled upward, and the arms and limbs were flexed and twitched spasmodically; giving, in general, the impression of a hemorrhage spread over both hemispheres of the brain. Examination of the head showed a soft fluctuating tumor over the right parietal bone extending to, but limited by, the sutures surrounding that bone. The child vomited frequently, had several spasms, no longer attempted to nurse, and died on the third day.

Dr. Wilmer Brinton was called in to see the child some few hours before death, and pronounced the case one of cephalhematoma with general cerebral hemorrhage. The anemia was then so pronounced that a very unfavorable prognosis was given. An autopsy was held on July 16th by Dr. Richardson, from whose report I have made the following extracts: On the right side of the head was a soft bluish swelling extending from a point 4.5 cm. from the external angular process upward and backward to the sagittal and lambdoid sutures and to the anterior fontanel, covering practically the whole parietal bone on the right side. On dividing the scalp there an effusion of dark blood was exposed. Over the parietal bone on the right side the pericranium was distended with blood, which spurted out on puncture. The extravasation of blood covered an area of 7.5x7.0 cm. On removal of the bone the dura mater was found firmly attached to the base and sides of the skull. Under the dura a large extravasation of blood forming a clot that extended over both hemispheres from the fissure of Rolando posteriorly to the occiput and into the transverse fissure. On both sides of the hemispheres in the parieto-occipital fissure were two spots about the size of the end of the index-finger in which softening and degeneration had occurred. These looked very much like abscesses, but Dr. Richardson was unable to say positively. The lungs were inflated and floated easily in water. The foramen ovale was still open.

Text-books regard cephalhematoma in infants as due to prolonged labor and mechanical injuries resulting therefrom. It is a particular form of caput succedaneum, but differs from the usual form in that the blood is poured out between the bone and the scalp, while in the ordinary type the blood is diffused into the surrounding tissues and gives rise to an edematous appearance of the scalp at that particular place where it happens to be situated, generally on one or other of the parietal bones.

In this particular instance we have these two forms of caput succedaneum existing together, as well as a large clot under the dura mater, pressing on the cerebral hemispheres. This pressure may have caused the softening and degeneration of the cerebrum in the parieto-occipital fissures, which looked so much like abscesses. The sub-dural clot contained about four fluidounces of blood, so that between the cephalhematoma and the cerebral hemorrhage it will be seen that the loss of blood was considerable.

The treatment in this case consisted in the administration of a little whisky in sweetened water, about ten drops to the teaspoonful, and such careful attention as the mother or nurse could give.

For the ordinary caput succedaneum no treatment is necessary, as it is entirely removed by absorption; but in the second form, the cephalhematoma, the absorption does not always remove the extravasation, and surgical interference is indicated. In such an event a linear incision ought to be made and the clot removed, with thorough antiseptic precautions. This form is generally confined to one bone, but may extend to two and very

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rarely to three bones. The danger arises from the loss of blood. In the case reported, as the extravasation was confined to one bone, it was not sufficient in itself to cause the death of the child, which was chiefly due to the hemorrhage inside the cranium.

The diagnosis of cerebral hemorrhage is not always easily made in children, and in this case it was made too late to permit of benefit from surgical interference. What then could have been done? I do not think anything would have done much good, but if a case should arise that would allow time for medication I would suggest rest, to be secured by the use of bromids and chloral in warm dilute solution by the rectum and a little whisky by the mouth. These would secure an increase in the watery constituents of the blood by absorption and thereby counteract the loss of blood due to the hemorrhage. Later on, or immediately, if conditions indicated it, an operation might be attempted and the clot removed.

## *BONE-DISEASE DUE TO CONGENITAL SYPHILIS.*

BY PHILIP MILLS JONES, M. D.,
OF SAN FRANCISCO, CAL.

CASES of bone-disease due to hereditary or congenital syphilis, though they do not seem to teach any great lesson or give much promise of relief or cure, are perhaps sufficiently uncommon to be of interest. The case about to be reported was found in a district of Honduras seldom visited by foreigners, and through which I happened to be passing while on a hurried trip across that country. The impossibility of obtaining photographs or of more carefully studying the case is to be regretted.

The sufferer was a male, twenty-two years old, whose father had "died of syphilis" twenty years before, or when the boy was about two years old. The mother was still living, and said to have had the same disease as the father for twenty-five or thirty years. This statement was confirmed upon examination. For two years after birth the boy was to all appearances well and strong, but early in the third year a rash broke out all over the body, and persisted for some weeks, finally subsiding, and leaving the child well, but less strong than before. For the next five years nothing unusual was noted, except that the child was not very strong, and that small sores often made their appearance, lasting a few weeks and leaving spontaneously. When seven years old, however, a large sore developed on the ulnar side of the right forearm—as they expressed it, "the skin began to fall off"—and since that time for fifteen years the patient had never been without an ulcerating surface more or less extensive.

The condition of the young man, when seen on August 14, 1892, presented a picture that can never be forgotten. The head was large, with a small, infantile face and features, extremely large ears (the auricle measured 3½ by 2½ inches), and large protruding eyeballs. The body was rather small—about as large as that of a ten-year-old boy of ordinary development—and the genital organs were correspondingly small. There was a total absence of hair from the pubis, and the pelvis was on the same scale as the trunk. The shoulder-joints and elbow-joints were unusually large, but the bones of the arms were small. The forearms measured nearly three inches more from elbow to wrist than the arms from shoulder to elbow, and the skin on the forearms was much more coarse and hairy than that covering the arms. A similar condition of the lower extremities was found, the legs being actually two inches longer (from knee to ankle) than the thighs, and covered with skin coarser and more hairy than that on the thighs. The knee-joints were large, but the feet and the ankle-joints were small. Until two years before, the patient could walk about quite well, but at that time his feet and legs commenced to swell, and became the seat of bone-changes, making walking impossible. The appetite was very good, and the alimentary tract did its work thoroughly, for he had never been troubled with any disturbance of the stomach or bowels. The man had always slept well, and complained of little or no pain, except from pressure on, or irritation of, an ulcerating area. When seen he was quite helpless, for degenerative changes had so far advanced in the knee-joints and ankle-joints as to make all forced movement very painful.

The head, except posteriorly to the parietal eminences, was one huge ulcerating sore. Destruction was most advanced over each eye, having apparently commenced just below the supraorbital ridge, and extending upward and backward, three inches on the right side and five inches on the left, covering both temporal regions. A strip of healthy tissue, about one inch wide, extended in the median line between these ulcers, but the bone on both sides was necrotic. Commencing immediately below the eyelids and ending on a line with the mouth was another ulcer, with the sloughing much more extensive and destructive on the left side.

Over the right scapula was an ulcer, measuring 5 inches by 3 inches, and on the left side, commencing at the angle of the scapula, extending upward over the shoulder and downward on the anterior surface of the arm for about 3 inches, was another necrotic patch. Large sloughing areas were found on the ulnar side of both forearms; from that on the right a piece of bone 2 inches long was discharged. On the right hand the terminal phalanx of the second and the whole of the third and fourth fingers had disappeared, but destructive changes seemed to have ceased for a time. The left arm was in pretty good condition, but the left hand presented a typical picture of active degeneration. There was far-advanced paresis of the second and third fingers, and an ulcerating stump was all that remained of the fourth or little finger. In the right foot the inflammatory process was apparently subsiding after an acute exacerbation which had resulted in a throwing out of a portion of the fibula just above the external malleolus; in the right foot the destructive change was progressive.

For three years previous to 1892 the man had taken mercury and potassium iodid in large doses without checking the sloughing process, and as, on the contrary, he continued to grow worse, all treatment had been discontinued. The sores were washed daily with warm water, and kept covered with cloths thickly smeared with lard, merely to keep out dirt and insects.

CROCKER BUILDING.

***Dr. Hiram Woods*** has been elected Professor of Diseases of the Eye and Ear in the University of Maryland, in succession to Dr. J. J. Chisholm.

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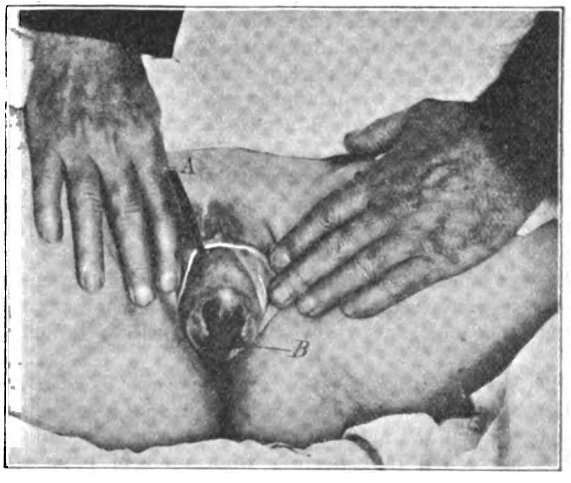
## LARGE FIBROID TUMOR OF THE ANTERIOR WALL OF THE VAGINA.

BY JOHN C. DA COSTA, M.D.,
OF PHILADELPHIA;
GYNECOLOGIST TO JEFFERSON MEDICAL COLLEGE HOSPITAL AND TO ST. AGNES HOSPITAL.

TUMORS of the vagina are so rare that Dr. H. N. Lewars[1] states that Hart and Barbour say that up to that time only 37 cases are reported in the whole literature. He was then reporting a case of fibroma of the anterior vaginal wall[2] that measured one-and-one-half inches antero-posteriorly and one-and-one-fourth inches transversely.

Dr. Alfred H. McClintock,[3] in 1845, reported a large tumor of the anterior wall that measured five inches in circumference; he ligated it with fishing-line around the base; it took four weeks altogether to remove it; there was sloughing and hemorrhage, and a small part of the urethra was cut off by the ligature. Mr. Paget,[4] of London, reported in 1861 that he removed a tumor "as large as a hen's egg" from the anterior right wall. The tumor was shelled out; recovery followed. Dr. Meadows,[5] of London, in 1868–9, removed one as large as a turkey's egg. He used an écraseur; the patient died in a few days. Dr. J. C. Moore,[6] of St. Louis, took out one in 1885 "as large as a California pear." He dissected it out and packed with carbolized gauze. Dr. Horatio R. Storer,[7] of Newport, R. I., in 1886 removed a large tumor of the vagina—probably the largest heretofore recorded—with an écraseur, by stretching the anus and pushing it out. Prof. A. R. Simpson,[8] in 1887 or 1888, took out a tumor "as large as two fists;" rooted along the entire anterior vaginal wall, upper two-thirds of the urethra, and part of the trigone of the bladder, to an extent in all of about five inches.

The patient upon whom I operated was a Pole, forty years old, who came into the Jefferson Medical College Hospital with a large tumor separating and projecting beyond the labia. A brief examination showed that it sprang from just in front of the cervix on the anterior wall of the vagina, and extended along the whole anterior wall to and even beyond the end of the urethra, and part of the way down on each side of the vagina. It was dense, and yet elastic, feeling something like a thick-walled cyst, but on incision it was found to be a fibroma. The measurements over the tumor before operation were: Antero-posterior diameter, six-and-one-half inches; transverse, four inches. It was quickly shelled out with knife and fingers. Only one artery needed to be tied. The large flaps that were left were cut off with scissors, the bed scraped with a sharp curet, and the incision closed just as in the operation for cystocele. There were no symptoms after the operation. In eleven days the stitches were taken out. There was perfect union from end to end, and a few days afterward the patient went home well.




Fibroma of the anterior wall of the vagina.
A. Sound in urethra.
B. Erosion from fricti

The photograph shows well the condition before operation. The black sound placed in the urethra shows the direction and how the tumor extended even beyond the opening. The dark spot on the tumor is an erosion caused by friction.

[1] Trans. Obstet. Soc., London, 1887–8.
[2] Trans. Obstet. Soc., London, 1887–8, vol. xxix, p. 299.
[3] The Medical Times, London, vol. xiii, p. 473.
[4] Medical Times and Gazette, London, 1861, vol. ii, p. 161.
[5] Trans. Obstet. Soc., London, 1868–9, vol. x, pp. 141–3.
[6] St. Louis Med. and Surg. Journal, 1885, vol. xlviii, pp. 125–7.
[7] Virginia Medical Monthly, 1886–7, vol. xiii, pp. 793–7.
[8] Trans. Obstet. Soc., London, 1887–8, vol. v, pp. 121–4.

## MEDICAL PROGRESS.

***Early Ectopic Gestation with Rupture of the Tube from the Uterus.***—ROSS (*American Journal of Obstetrics*, vol. xxxii, No. 214, p. 567) has reported the case of a woman, thirty-four years old, who had borne three children, the youngest of which was five years old, and who, though not robust, had been in good health until a week before coming under observation. At this time she complained of a feeling of weight in the pelvis, but made little of it, until she was seized with sudden, violent pain in the umbilical region, soon followed by signs of collapse. The woman presented the appearance of a case of ectopic gestation with intraperitoneal hemorrhage, but no evidence of pregnancy could be found. The patient had menstruated naturally ten days before, and there had been no vomiting and no pain or swelling of the breasts. No urine had been passed for several hours, and catheterization brought away only a wineglassful. Vaginal examination revealed no tangible evidence, but palpation of the abdomen made it evident that there was a collection of fluid in the peritoneal cavity. The patient became almost pulseless and lay upon the right side, complaining of a dragging feeling when she turned on her back. The uterus was pressed toward the left, and the effusion of blood was upon the right side of the abdomen, although the ruptured tube proved to be upon the left side. In the hope that the woman would rally she was removed to the hospital and operation deferred. Her condition, however, remained so poor that ethyl chlorid was used as an anesthetic for the abdominal incision. The right tube was healthy; the

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left could not be found. A drainage-tube was introduced into Douglas's cul-de-sac, and considerable blood escaped. The woman rallied a little, but symptoms of peritonitis developed. As the hemorrhage persisted ether was cautiously administered, and ethyl chlorid applied locally and ligature of the bleeding vessels undertaken. These were found in the isthmus of the tube close to the uterine cornu, a part of which it was necessary to include in the ligature. The tube was completely separated from the portion that remained attached to the uterus. The portion of the tube containing the ectopic gestation was no thicker than an ordinary lead-pencil, and the pregnancy could not have been of longer than two weeks' duration. The abdomen was speedily washed out and the hemorrhage ceased, but death took place twelve hours after the operation.

***A Case of Pygopagus.***—JACOBI (*Archives of Pediatrics* October, 1894, p. 721) has reported a case of pygopagus, together with the notes of thirteen other cases that he has succeeded in collecting from medical literature. The children were both females, and they lived for nearly five months. The labor was easy, the head of one fetus being soon followed by the lower extremities of the other and the rest of the joined twins. The placenta and the cord were single, the latter diving into two branches two inches from its velamentous insertion. The children were united below the third sacral vertebra, over an area having a diameter of an inch-and-a-half, in such a manner that the babies could lie almost alongside each other. The upper sacral vertebræ were distinct, the lower and the coccyx single. The backs of the infants were straight. There were two vaginæ, two clitorides, two urethræ, four labia minora, and but two labia majora. There was one anus, although the rectum was double. Tickling the soles of the feet of one of the infants elicited no response from the other. One cried by night and slept by the day; the other did the reverse. The pulse of one fetus was 122, that of the other 126. The sinistral child died eight hours before the dextral. Both children were markedly emaciated and presented numerous abrasions about the external genitals. The sinistral measured 48 cm. in length, the dextral 50 cm. The stomach of the latter was considerably larger than that of the former. The pelvic cavities of the two children were separated by fascia and peritoneum only. The lower ends of the spinal dura mater communicated through a space corresponding to the opening in the sacral canal, and both were greatly dilated. The spinal cords, however, were not fused. The band of union existed between the lateral masses of the sacrum, which was unusually developed. This part was partly ligamentous and partly cartilaginous. The external genitals could readily be separated. Each child had its own generative organs, and each its own distinct circulatory apparatus. The anus was common to both, but was largely situated in the dextral child. About ½ cm. above the anus was a well-developed antero-posterior septum, also more closely identified with the right child and thick enough to form a perfectly normal rectum for each.

***Fatal Hemorrhagic Purpura in a Case of Tuberculosis.***—At the recent meeting of the French Association for the Advancement of Science, GALLIARD and MARCHAIS (*Le Mercredi Médical*, 1895, No. 37, p. 439) reported the case of a man, aged thirty-seven years, in which thoracentesis had been performed for the relief of a right-sided pleural effusion. The general condition failed to improve despite the administration of creosote. While under observation hemorrhage took place from the gums; small bullæ filled with blood formed upon the tongue and the internal surface of the cheeks and lips; finally petechiæ appeared upon the lower extremities. Before death took place hematuria and melena occurred. Upon postmortem examination there was found, in addition to tuberculosis of the right lung, pericardial and gastric ecchymoses, and bloodclots in the pelvis of the right kidney.

## THERAPEUTIC NOTES.

***The Treatment of Ectopic Pregnancy with Injections of Morphin.***—In the Section for Obstetrics and Gynecology of the recent Congress of German Naturalists and Physicians, PROCHOWNICK (*Deutsche medicin. Wochenschr.*, 1895, No. 40, Suppl. No. 25, p. 170) advocated the treatment of ectopic pregnancy during the first months by means of injections of morphin instead of by operation. He reported four cases successfully treated by a single injection through the vagina of from gr. ½ to gr. ¾ of morphin into the intact gestation-sac without aspiration. In three of the cases the pregnancy had not passed the twelfth week; in the remaining one, which was complicated by gonorrhea, this period had been passed, and in this case also an abscess formed that discharged through the rectum. In a fifth case the injection was made through the anterior abdominal wall, and the sac was infected by the needle passing through an adherent loop of bowel; septicemia developed and celiotomy was required, but recovery ensued. It is important to refrain from aspiration and to make but a single injection. The operation is contraindicated if the twelfth week has passed, if abortion is in process of occurrence, and if chronic gonorrhea or acute perimetritis exist. The vaginal is the only safe route of injection.

***The Treatment of Prostatic Hypertrophy with Prostate Gland.***—Stimulated by the results reported in the treatment of goiter by the administration of the thyroid gland of animals, REINERT (*Centralblatt f. d. Krankh. der Harn- und Sexual-Organe*, B. vi, H. 8, p. 393) was led to employ prostate gland in the treatment of prostatic hypertrophy. Four cases were thus treated: one was lost to observation after two weeks; in a second the treatment had to be discontinued for extraneous reasons; in the remaining two it was persisted in for six and eight weeks, respectively. In both of the last cases appreciable reduction in the size of the gland resulted, with corresponding amelioration of the symptoms. The size of the gland was determined by palpation, and a permanent record at once made in the form of a model. The prostate for administration was obtained from steers, and was prepared by being chopped in the fresh state and spread upon buttered bread. At first an eighth of a gland was given, but the dose was gradually increased to half a gland two or three times a week. The medicament can also be prepared in the form of a powder or tablets, or as a dry or glycerin extract.

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SATURDAY, OCTOBER 26, 1895.


## ANOTHER PROPHET.

Who is Schlatter? Who is the prophet to whom belongs this euphonious cognomen? What is his divine right or his divine mission? All we know is that Schlatter is the New Mexican "Messiah," now starring somewhere in the remote West, and that he formerly lived on Long Island, where he was jilted by a girl.

It seems that Schlatter has assumed the somewhat threadbare rôle of a divine healer. He is a miracle-worker and a direct ambassador from on high. Like all his ilk, he displays no originality in his repertoire, but is content to work along on the old familiar ground as a conjurer who cures disease. There is, of course, some apparently deep-seated reason for this persistent reappearance of the therapeutic tendencies of these self-constituted prophets. They all run naturally to pathology. This reason, however, is not far to seek. It is found in the simple fact that disease is the universal heritage of mankind; the one inevitable and frightful opponent from whom no man escapes if he lives long enough. Hence the pseudo-Messiah always finds a favorable situation ready-made for him. The logic of fate is always his. He has the best *argumentum ad hominem* that was ever constructed. He has only to appeal to the sempiternal fear of death and to demonstrate his ability to control or to banish the hideous demon, disease, and all will be accounted to him for divinity, with a direct commission from on high. It has always been so in every age of mankind, and it will doubtless continue to be so. In the evolution of myths the heroes and the warriors have always been secondary to the prophets and priests who dispense healing.

It is thus readily seen that scientific medicine has but little concern with these practices and the claims upon which they are based. They teach her nothing but what she already knows. They demonstrate the meager facts that the human mind is easily possessed with strange delusions; and that the strangest of these is the delusion that disease can be abolished by a miracle. As a subordinate fact, they sometimes demonstrate the influence of hypnotic suggestion in controlling favorably some diseases in the psychic and psycho-motor spheres—but for these demonstrations science cares but little to-day. She can make such demonstrations for herself in the hospitals, without resorting to the jugglery and impostures of religious fakirs.

That Schlatter is an uncombed and uncouth humbug goes without saying. He lets his hair and beard grow long, of course, and inserts his picture in the newspapers. Before he went West, however, he observed tonsorial rites, and is shown at that period of his career in another picture as a smug-looking Philistine of Long Island, as yet unjilted by a girl.

Crowds wait upon Schlatter. The people who run after him are all intent upon one thing—the cure of their diseases. A press-dispatch says that a multitude in Denver attended upon him in order to merely touch the hem of his garments, owing to the report that fabulous cures had been effected in persons who had merely looked at the face of the healer. Such phenomena, of course, are as old as the hills. Denver is a comparatively young town, and probably wants to demonstrate to students of anthropology that she, too, partakes of some of the antique follies of the human race.

The enthusiasm of the Denver populace could not be tempered even by the unseasonably cold weather that swept down recently from the Rocky Mountains. The intense cold and the dire distress caused by it did not deter the crowd. At 10 o'clock at night people began to flock to the vicinity of Schlatter's house, so as to be in line early on the

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following morning. The thermometer had just fallen to below the freezing-point from the height of eighty degrees. Five inches of snow covered the ground.

The crowd was not limited to the poor. Well-dressed and well-to-do people were foremost in the line, and pleaded for the condescension and regard of the hirsute prophet.

The effect of all this upon such a mind as Schlatter probably has can readily be foretold. Whatever sincere self-knowledge and humility he may possess will soon of course be hopelessly corrupted. The inner light of his own consciousness (if he has such an illumination) will soon be distorted and broken up through the prism of religious delusions. It is probable enough that he is not a man of mentally sound health; such men seldom are. But if he has any honest and sound intellect left, the Denver people will soon give the *coup de grâce* to it, and convert Schlatter into a fanatical lunatic.

These considerations suggest the only practical points in this affair of Schlatter. First, for his own good he should be saved from the Denver and every other rabble, which would soon convert him from an incipient paranoiac into a confirmed monomaniac. Second, he should be submitted to an examination before a commission to determine the degree of his mental unsoundness, and if he is found sincere in his delusions he should be committed to an asylum. Third, if he is at heart merely a perverted enthusiast, who obstinately persists in his alleged healings, he should be made either to produce a licence to practise medicine or to cease his present course.

The modern world is striving to rise above the stage of myth-culture. Modern society has a right to protect itself by an appeal to the well-established laws of medical science and of sociology. Tolerance of such archaic types as Schlatter is neither a kindness nor a duty. The State owes it to itself and to its citizens to control with firm and even-handed justice all such aberrations from a wholesome standard.

## LIFE-INSURANCE STATISTICS.

THE great life-insurance companies of this country have stored up in their offices material which, if properly investigated, would be of inestimable value to the medical profession, and throw light on more than one problem now in need of it. A business that receives 300 medical reports daily, and writes 10,000 policies each year, as many of the old-line companies do, must have some statistics worth analyzing.

These statistics have a value not only because of their mass, but also because they deal with a class, or rather with classes, of individuals, that probably differ markedly from those usually studied in hospitals, in public institutions, and in the army and in civil service. The insurance-companies endeavor to select the healthy, the normal, the well-to-do, the successful, and hence any data compiled from their records must be of special value as an indication of the normal.

Dr. Marsh, Medical Director of the Mutual Life-Insurance Company of New York, has published three short papers on questions pertaining to medicine, utilizing the experience of the company, and subsequent pamphlets are to appear primarily for the benefit of life insurance companies, and it is hoped that, indirectly at least, they will be of service to the medical profession. At any rate, these papers may stimulate the medical officers of other insurance companies to give to the world the results of their experience, and to present statistical evidence in such form that it can be readily used by investigators.

In his paper on "Gout," as affecting the insurance of lives, Dr. Marsh finds that although the company has been careful to exclude applicants presenting a history of gout, and in some 300,000 policies has only written 58 on gouty lives, its experience with these few has been an unprofitable one.

The lives of 48 gouty persons were insured because there was some doubt in their history, or because an attack had not occurred for a long period, or because some other reason made the risk seem a good one; but even among this selected class the mortality-rate was greater than was expected, and the duration of life less than was calculated. The extra premium charged did not cover the cost.

The English companies have had a similar experience, gout, of course, being more common with them. The conclusion is reached that "in every case the presumption is against the acceptance of an applicant who has had gout, and the case must be proved to be suitable for an exception after more than ordinary scrutiny and investigation."

Exceptions might be made in cases in which there is an entire absence of hereditary tendency, when the first attack shall not have appeared before thirty years of age, when the attacks are few in number, slight in character, and several years have

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elapsed since the last one; and when uric-acid deposits, gravel, and other symptoms of lithemia are absent.

In his paper on "Syphilis" Dr. Marsh has no statistics of his own to present, because it has been the rule of his company to refuse all applications for insurance when a history of syphilis was given. This rule, he thinks, can be modified in the light of experience so as to admit such syphilitics as have been subjected to proper treatment, and who have passed a period of six years without developing tertiary lesions. He quotes Fournier's statistics to show that in more than one-half of 2395 cases of tertiary syphilis the symptoms presented themselves within six years, and in only 28 per cent. were they delayed ten years. The results of this ruling if put in operation will be of great interest as bearing upon the question of the duration of the symptoms of syphilis (and the influence of these on the length of life), although many years must elapse before the figures will be of value.

The effect of disease, race, and occupation in influencing length of life and the importance or non-importance of hereditary taints are some subjects that can receive much light from life-insurance statistics, and it is to be hoped that the several companies will be less selfish than before, and that they will devote a portion of their surplus to scientific statistical investigation, with a view of enlightening the medical profession, which in the end means the welfare of the community as well as protecting themselves from unprofitable risks.

## ABNORMAL ARRANGEMENT OF BRAIN-CONVOLUTIONS.

IN his presidential address before the Section of Psychology of the British Medical Association, W. J. MICKLE spoke of the abnormal forms and arrangement of brain-convolutions, and showed how little of value there is known on the subject. The normal brain has hardly been sufficiently studied, so that a standard does not yet exist. BENEDIKT, in his study of the brains of convicts, claims to have found in them features suggesting resemblance to simian brains, but BISCHOFF, BINSWANGER, and other observers have found such characteristics as often in the brains of supposedly honest individuals, and MAUDSLEY wonders "if the stigmata of degeneracy, which the Lombrosian school would have found in Saul, the persecutor of the early Christians, would have vanished when he became Paul the apostle of the Gentiles." If fissures on the surface of the brain are so important in determining the quality of the brain-structure, why may not the convolutions of the intestine, the folds of the skin, the depth and complexity of the rugæ of the stomach be likewise studied with a view of locating the exact position the individual occupies in the evolutionary scale?

Formerly, the *weight* of the brain was held to determine the relative intelligence of the person possessing it; however, when idiots were found with large brains and some bright men with small ones, this theory was dropped, and the thought was given out that superiority consisted in the greater number of convolutions, which allowed a greater amount of gray matter to occupy a definite space. But now we have some criminologists who say that the degenerate brain often shows a most complex system of fissures and convolutions; and that an extra convolution here and there is not at all uncommon. Thus we are finally forced to search the ultimate histologic nerve-cells in the endeavor to find the characteristics of the criminal, insane, idiotic, and mattoid brain; to discover there, if we can, what induces the one to steal, the other to remain upright; what allows the one to become a genius, the other to remain an average man. Having, for instance, once located the center for honesty, we could for the relief of abnormal conditions cut down upon it, remove the growth or relieve the pressure present, and reform our criminals; soldiers could be inoculated with a toxin acting as a stimulant on the murder-center; and prostitutes would have no need of their profession after the appropriate operation on the center for chastity. What is most needed is a carefully determined standard of the normal brain, and until this is obtained we cannot come to any positive conclusions in regard to variations. The vagaries of the faddists of the anatomic school well illustrate the disgusting tendency of many pseudoscientific investigators, who go at every subject with theories and prejudices and dogmatisms as unscientific as any medieval "bigot." The basis of all true science is unprejudiced, uncolored induction from carefully observed facts.

***The Judicial Council of the Association of American Medical Colleges*** has decided that its constitutent members may graduate in 1898, students matriculating in 1895 and attending three full courses of lectures of six months each in three separate years.

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# EDITORIAL COMMENTS.

***The Noise-nuisance.***—One of the best arguments we know of against the frequently heard statement that modern nerves are becoming morbidly sensitive is the indifference usually manifested toward the horrible noises and din of city life. Bring a country-bred individual, either man or horse, suddenly upon one of our busy thoroughfares, and the thing he is at once most keenly conscious of is the maddening, deafening jangle and tangle of frightful noises. He hears every one of them at once and in equal degree, and is literally paralyzed by conflicting impulses to escape from them all. The city dweller, on the contrary, simply treats them as if they did not exist, and by a remarkable feat of nervous toleration not only is not annoyed by them, but is actually unconscious of them all, unless they develop unusual or threatening tones, when he notices them at once. Like the street-broken horse he has learned by experience that none of them is going to hurt him, and his brain-centers ignore them. He still hears them, however, as is shown by the fact that he is even quicker than his country cousin to detect among them the wild rattle of a runaway or the fierce gong of the ambulance or fire-engine, which he must look out for at once. And this tolerance assumes even more remarkable forms. Not only is he not disturbed by the noises, but he actually seems to depend upon them and is disturbed by their absence. The man about town often cannot sleep well in the country for the first few nights "for the deadly stillness." Those who live in the near neighborhood of mill-dams, mills, and machinery will wake instantly in the night should the machinery stop, and often complain after moving to other neighborhoods that they "miss the noise." Nevertheless, in spite of the wonderful powers of accommodation of the human nervous system, endurance has its limits and the noise-nuisance is a most disagreeable and injurious factor in our city life. Especially is this true of those noises which are periodical or occasional, and which occur at unseasonable hours of the night or early morning, such as early church-bells, trains, fish-horns, milkmen's bells, and pedlers' shrieks. In many quarters a determined effort is being made to put a stop, so far as possible, to these attacks upon the rest and comfort of the community. This cannot be too highly commended, although in a couple of recent instances the attempt has developed a somewhat amusing situation.

The first is that of an English gentleman, who, after vainly endeavoring to abate by process of law a vain and extremely noisy chanticleer belonging to an attaché of a foreign legation next door to his house, finally adopted the bold means of writing directly to the sovereign of the obdurate official. Whether he used a special-delivery stamp or a registered letter is not stated, but, although he got no reply, the rooster promptly disappeared to the great relief of the complainant's insomnia. The other is the controversy that has sprung up over the action of the Board of Health of an eastern village in requesting the rector of an Episcopal church to discontinue certain chimes which were accustomed to ring at seven o'clock on Sunday morning. As the chimes in question admittedly rang out three tunes of two verses each, followed by a "general peal" about five minutes long, they were certainly well adapted to thoroughly disturb the Sabbath slumbers of the neighborhood, and numerous complaints were made to the board by business-men deprived of their most precious Sabbath privilege, the Sunday-morning sleep. These were backed up by reports of sick persons whose scanty slumbers were rudely broken, until finally the board rose to the emergency and issued the order aforesaid. While they were in the vein they also made demonstrations against the gongs and bells of certain bakers and milkmen, and even appointed a committee to wait upon the superintendent of one of the railways to protest against the whistling, ringing of bells, and blowing off of steam on the part of an unnecessarily obstreperous and self-important freight-train that passed through the village in the early morning hours. Diletantteism in religion and esthetics at once united with general obstreperousness, and such a disturbance was made that the board found it wisest to rescind its order, and the chimes remain in possession of the field—a plain instance of copartnership of church and devil.

The loyal American has been taught for generations the diabolical lesson that to celebrate or to enjoy oneself means to make the most fiendish noises possible. It is amazing the misery that people will cause and endure on the manifest pretence of having "a good time." Few things are more indicative of the deplorable dearth of genuine pleasure than the noise-making mania. Contemplate street-car loads of lunatics, all at once screeching, bawling, howling, drum-beating, horn-blowing, fife-squealing, tearing through a city in the middle of the night. Think of the nervous systems of a million people that will endure that, and think of the police-system that smiles at it! What hope of civilization is there in such a condition of affairs? The health of well people is endangered and the lives of the ill are shortened by a hundred such crimes against sleep and rest. It is time that medical men and medical societies entered upon a combined crusade against the pernicious indifference of the police to the brutalities of the noise-makers. It is useless for individuals as individuals to complain. We who know that only by proper sleep and rest can the human organism carry on the work of modern life should seek to prevent the atrocious cruelties of those who make useless noise, and especially during the night.

***Diphtheria in Philadelphia.***—The death-rate in this city from diphtheria continues to be as great as ever, and the number of cases this year will not fall far short of the number occurring last year.

For the nine months ending September 1, 1895, the Medical Inspector had reported to him 2213 cases with 726 deaths, a mortality-rate of 32.8 per cent. For the same period last year there were recorded 2402 cases and the death-rate for the whole year was 33 per cent.

The following table shows the number of cases with the deaths for the past five years:

| *Year.* | *Cases.* | *Deaths.* | *Per cent.* |
|---|---|---|---|
| 1890 . . . . | 1820 | 528 | 29.0 |
| 1891 . . . . | 3251 | 918 | 28.2 |
| 1892 . . . . | 5053 | 1435 | 28.3 |
| 1893 . . . . | 3149 | 916 | 29.0 |
| 1894 . . . | 3159 | 1047 | 33.0 |

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From this table we see that there has been but little change in the virulence of diphtheria for the past five years, and that change for the worse.

According to all accounts we should have expected, with the establishment of the bacteriologic laboratory, a greater number of cases of a mild nature, and a consequent diminution in the total death-rate. This has not happened, and the death-rate of 32.8 per cent. for the nine months of 1895 shows how fatal the malady still is.

On the other hand, from all parts of Europe come authentic statements reporting a marked reduction in the death-rate under the use of the antitoxin. The remarkable fact that over 400,000 doses have so far been used without serious effects establishes the innocuousness of the new remedy beyond a doubt. Realizing this fact it seems that the antitoxin is worth a trial, not only in undoubted cases of diphtheria, but in all suspected cases, as all other methods of treatment, in Philadelphia at least, have shown themselves to be of comparatively little service.

*Yellow Fever in Cuba.*—Poor Cuba has more than one host to contend with. The invasion of the land with Spanish troops has not as yet resulted in much bloodshed, the majority of battles ending with few wounded on either side; but "yellow jack" has been rather busy among the inhabitants. The United States Sanitary Inspector reports that during the month of September 650 deaths occurred in the city of Havana, of which number 126 were caused by yellow fever, and during the week ending October 3d, 90 new cases appeared, with 29 deaths. The majority of these cases are among the military, and the Spanish soldier unaccustomed to the climate falls a prey readily to the malady. This battling with yellow fever is a form of warfare not taught in military colleges and the insurgents are greatly profiting by it. "It's an ill wind blows no one good."

## REVIEWS.

Clinical Gynecology, Medical and Surgical, for Students and Practitioners. By Eminent American Teachers. Edited by John M. Keating, M.D., L.L.D., and by Henry C. Coe, M.D., M.R.C.S. Pp. 994. Philadelphia: J. B. Lippincott Company, 1895.

The astonishing growth of gynecology as a special and distinct branch of surgery and medicine is fully exemplified in this handsome and massive volume presented by the eminent editors, the late lamented Dr. John M. Keating and Dr. Henry C. Coe. It is safe to assert that within the past decade and a half no other branch of medical science has made such progress as has that dealing with the diseases peculiar to women, and the technic of abdominal surgery during this period has been entirely revolutionized, mainly through the efforts of the gynecologist. In the present volume, in addition to the editors, such men as the late William Goodell, William H. Baker, Francis H. Davenport, Hunter Robb, Bache McE. Emmet, Barton Cooke Hirst, Matthew D. Mann, William M. Polk, J. Whitridge Williams, Henry T. Byford, Paul F. Mundé, Hermann J. Boldt, William T. Lusk, Chauncey D. Palmer, Charles Jewett, John Polak, Edward E. Montgomery, Dudley P. Allen, Louis A. Duhring, and Milton B. Hartzell have brought their best efforts to bear in presenting in a most acceptable form the various subjects allotted to them. That they have succeeded it is hardly necessary to say. It would be invidious to single out any one article or series of articles as being of more than usual merit. All have been written by men who have attained eminence and fame in their chosen branches, and while some of the views advanced cannot be indorsed by all, and while there are others that it would have been better, perhaps, to have entirely omitted from the book, on the whole the volume may be said to fairly represent the status of gynecology in America. However, there is no perfect book, and with its virtues this volume has its defects and blemishes. Together with all other composite books it is open to the criticism of the promulgation of diverse opinions, often diametrically opposed, as well as to waste of space arising from unnecessary repetitions in the various articles from inability on the part of the authors to draw a clearly defined line of demarcation. It is also to be regretted that so much space has been given to a description of the various forms of pessaries, which we cannot admit to be "necessary evils," but which are rapidly growing obsolete, except in a very limited proportion of cases, and which merely represent the transitional stage from inaction to appropriate surgical intervention. The pessary is merely a palliative means, and palliative measures should never be resorted to when operative procedures may be adopted. The pathetic feature connected with the work is the death of one of the editors, Dr. Keating, prior to the publication of the book. His work in gynecology and pediatrics will live after him and will continue to live as long as medicine lasts. A similar melancholy interest attaches to the introductory remarks by Dr. Goodell, the last published writing of one who may be designated as the father of American gynecology. This contribution is characterized by the conservatism that marked the methods of Dr. Goodell for a few years prior to his decease. The work of the publisher has been well done, and the book, in consequence, presents a bright and attractive appearance. The type is good, the illustrations clear and numerous, and the indexing satisfactory.

A Text-Book of Practical Therapeutics; with Especial Reference to the Application of Remedial Measures to Disease and their Employment upon a Rational Basis. By Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. With special chapters by Drs. G. E. de Schweinitz, Edward Martin, and Barton C. Hirst. New (fifth) edition, thoroughly revised. Octavo, 740 pages. Philadelphia: Lea Brothers & Co., publishers, 1895.

A book that has reached its fifth edition is practically beyond the range of criticism. Though it may have faults, it must yet fulfil a want, or possess neutralizing qualities, in order to commend itself to the favorable consideration of those who need an authoritative expression or a faithful representation upon the subject with which it deals. In addition to the usual revision and emendation, a few paragraphs on the antitoxin-treatment of diphtheria have been incorporated in this new edition. On the other hand, not a word is said as to the similar

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method of treating tetanus. Under the subject of asphyxia we are unable to find a reference to rhythmic traction of the tongue. Among the salts of strontium the salicylate has failed to receive mention; nor are ammonium salicylate and cinchonidin salicylate considered. In the treatment of acute opium-poisoning, nothing is said of the use of potassium permanganate. Neither myxedema, nor cretinism, nor thyroid extract is anywhere in the book even named.

# CORRESPONDENCE.

## NEW YORK LETTER.

*New York State Medical Association.*

THE twelfth annual meeting of the New York State Medical Association has just been held here under the presidency of Dr. Austin Flint. As usual, a wide variety of subjects has been covered. In a paper entitled

A CLINICAL REPORT ON ORTHOPEDIC SURGERY,

DR. S. E. MILLIKEN, of New York County, described what he believed to be the first instance in which a healthy muscle had been made to do the work of one that was completely paralyzed without interfering in any way with the work of the former. The case was one of long-standing infantile paralysis, which had not been benefited by mechanical treatment, and in which the child, a boy of nine years, seemed doomed to be a cripple all his life. Examination showed that the tibialis anticus muscle was the one chiefly involved, and that consequently flexion of the foot was accomplished through the agency of the extensor proprius pollicis, the extensor longus digitorum, and the peroneus tertius. Accordingly, under ether, the tendons were exposed and flaps taken from the tendons of the tibialis anticus and extensor proprius pollicis. These were then united by fine interrupted sutures of kangaroo-tendon, and the outer sheath of the extensor proprius pollicis sewn to the inner sheath of the tibialis anticus so as to make a new sheath for these newly united tendons. After the foot had been placed in proper position by manual force, a plaster-of-Paris dressing was applied, and was continued for six weeks. The boy had become quite expert on roller skates, and could abduct the foot nearly to the normal limit.

DR. JOHN G. TRUAX, of New York County, proposed the use of alcohol as

A DOMESTIC TEST FOR ALBUMINOUS URINE.

This agent, which can be readily procured at a moment's notice in almost any household, is a convenient reagent for the purpose named, and may be of any strength between 60 and 95 per cent. The test is made by placing the alcohol in a test-tube, or even in a tumbler, and dropping into it some of the urine to be tested. If albumin be present the alcohol would be filled with white streaks as the urine sank down to the bottom of the vessel, or if a large quantity of albumin were present the alcohol would become cloudy. Mucus would also respond to this test, but with this difference, that the cloudiness would be quickly diffused through the alcohol, and not appear in streaks. Dr. Truax said that he considered this test fully as accurate as any of the others usually employed, and even more delicate.

The next paper presented a somewhat novel subject. Its title was

THE CAUSE OF MUCH SICKNESS THAT IS OFTEN OVERLOOKED,

and its author was DR. W. H. ROBB, of Montgomery County. The sanitary condition of two houses, one in the city and the other in the country, was considered, and the conclusion drawn that various cases of illness, *e. g.*, diphtheria and remittent fever, occurring in these two houses during a period of many years, were due to the existence of "dry rot" in the timbers of the cellars. One case of remittent fever had persisted for eighty days when, at the suggestion of Dr. Harris, then secretary of the State Board of Health, who saw the case in consultation, and was disposed to attribute the prolonged illness to the dry rot in the cellar-flooring, the boy was removed to the upper part of the house. The remissions ceased after another day, and convalescence was rapid and uninterrupted from that time on.

DR. HENRY MCM. PAINTER, of New York County, delivered the

ADDRESS ON OBSTETRICS.

It was devoted to a consideration of the many glaring deficiencies in the present method of teaching obstetrics in the various colleges, and to an arraignment of that relic of the past—the didactic lecture. After describing the pitiable plight in which the recent graduate of medicine usually found himself when attending his first cases of labor, attention was called to the carefully graded system of instruction in practical obstetrics which was the foundation-stone of the now widely known work of the Society of the Lying-in Hospital of the City of New York. This institution and the Sloane Maternity Hospital, the speaker said, were the only places in this country where practical obstetrics was regularly and systematically taught.

DR. WILLIAM H. PARK reported some

RECENT STUDIES ON DIPHTHERIA AND PSEUDO-DIPHTHERIA.

He said that as there are now upward of 10,000 reported cases of diphtheria which have been treated with the diphtheria-antitoxin, statistics are of some value. His conclusions were: (1) That the diphtheria-antitoxin has a distinct curative effect in diphtheria; (2) that the results are better when the injections are used early in the disease and when the disease is uncomplicated; (3) that the total quantity required varies from 1000 to 4000 units of Behring's standard, according to the weight of the patient and the severity of the disease; (4) that immunity is conferred by injections of the serum, and that this immunity lasts for four weeks; (5) that it has not been observed that the antitoxin has caused any serious disturbance of the kidneys; and (6) that its only observed injurious action is to produce a temporary diminution in the number of the red blood-corpuscles.

Reference can only be made to some of the many conditions considered by DR. JOHN E. WEEKS, of New York County, in his paper on

THE EMERGENCY-TREATMENT IN ACUTE DISEASES OF AND INJURIES TO THE EYE.

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For hordeolum, he recommended the application of moist heat for twenty-four hours or more, and, as soon as pus is present, free puncture. After this, the treatment consists in bathing the part with hot water several times a day. In referring to diseases of the conjunctiva, the warning was uttered that "all acute diseases of the conjunctiva accompanied by a discharge are contagious." In gonorrheal conjunctivitis, it was recommended that the eye should be carefully cleansed with a 3 per cent. solution of boric acid, the lids being everted. The surface of the palpebral conjunctiva should be freely painted with a 1 per cent. solution of silver nitrate, and the eye should be washed as often as is necessary to keep it free from secretion. Cold should be applied to the eye at intervals of two or three hours until the swelling begins to subside. The same general line of treatment is to be followed in cases of ophthalmia neonatorum. Corneal ulcers may sometimes be aborted by a cautious application of pure carbolic acid, carefully limiting its action to the affected spot. To prevent discoloration of the lid after contusions, a light ice-bag or ice-cloths should be applied for the first twenty-four hours, after which time the aim should be to hasten absorption by hot bathing. When the eye has been burned by the entrance of lime, it is well to wash out the eye with milk, or else with oil, and then instil a strong solution of sugar, which renders the lime inert.

Dr. Charles Stedman Bull, of New York County, read the clinical histories of

SOME UNUSUAL CASES OF ORBITAL AND INTRAOCULAR TUMORS, EMPHASIZING THE NECESSITY OF CAREFUL DIFFERENTIAL DIAGNOSIS.

This was followed by a paper by Dr. Heil J. Hepburn, of New York County, detailing the clinical record of two cases, together with some

NOTES ON THE DIAGNOSIS OF INTERSTITIAL CEREBRITIS.

The evening session began with the Address on Medicine, which was delivered by Dr. A. A. Smith, of New York County. It was entitled

THE PRACTICE OF MEDICINE IN THE LIGHT OF BACTERIOLOGIC RESEARCHES.

In summing up the various ways in which bacteriology has influenced medicine, Dr. Smith said that bacteriologic research has made clear many points in the etiology of disease which have been obscure; it has offered a scientific explanation of the communicability of many diseases; it has made diagnosis more definite, and prognosis more accurate; it has explained complications before but little understood; it has revolutionized surgical and obstetric practice; it has prevented the spread of many dangerous epidemics; and it has led to the specific treatment of diphtheria, and possibly also to that of tetanus, as well as to the conferring of a temporary immunity.

Dr. William Carr, of New York County, then read a paper on

EMPYEMA OF THE ANTRUM,

in which he stated the belief that the vast majority of these cases originate from diseased teeth. The treatment recommended by him is an opening into the cavity through an alveolus, preferably at the second molar tooth, and the closing of this opening with sterilized gauze, except when it is desired to wash out the sinus with a weak antiseptic solution. He objected to the use of drainage-tubes, particularly those made of silver, as they corrode very rapidly, and are liable to slip into the antrum.

Dr. Edward B. Dench, of New York County, offered some

GENERAL SUGGESTIONS REGARDING THE DIAGNOSIS AND TREATMENT OF ACUTE AURAL INFLAMMATION.

He called attention to the fact that while in an adult tenderness on moving the auricle, or on pressure in front of the meatus, is almost pathognomonic of inflammation of the external canal, in infancy this sign is a strong indication of inflammation of the middle ear. Early in an attack, the local abstraction of from one to four ounces of blood, with one full dose of morphin, often gives great relief, and checks the inflammatory process; but under no circumstances should more than one dose of an opiate be given. Dry heat, *e. g.*, by means of small salt-bags made of old glove-fingers, is very grateful, and should always be employed in preference to moist heat. The latter is distinctly harmful by its tendency to produce, or rather to favor, tissue-necrosis. If after such treatment the symptoms continue urgent, a free incision should be made with the object of depleting the tissues. If this is done according to the rules of aseptic surgery, it is a safe procedure, even in the hands of the general practitioner.

Dr. George E. McDonald, of Schenectady County, reported a remarkable case in which he had been able during life to diagnosticate the following conditions, and to have them confirmed by autopsy: Acute hepatitis; gallstones; abscess of the liver rupturing into the bronchi; extrauterine pregnancy.

Dr. H. M. Silver, of New York County, read a paper on

FOREIGN BODIES IN THE ESOPHAGUS.

After describing several interesting cases of this kind, he said that when a sharp, jagged body has been swallowed, no attempt should be made to extract or push it down, but it should be at once removed by operation. The use of catheters, small esophageal bougies and the sponge-probang is to be condemned. The best instrument for determining the location of a foreign body in the esophagus is a metallic bulbous bougie, provided with several knobs of different sizes, and with the stem graduated so that the operator can readily determine the exact distance of the body from the upper incisor teeth. When the body is less than thirteen inches from the upper incisor teeth, it should be removed by esophagotomy; if at the cardiac orifice, or just above, by gastrotomy, if possible; if not, then by intrathoracic esophagotomy. It is not necessary to suture the wound in the esophagus, and this should never be done if the esophageal wall is infiltrated, or approaching a condition of gangrene. The external wound should never be completely closed. No food whatever should be given by the mouth for twenty-four hours after the operation, but after this the

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patient may be fed entirely by the mouth. Rectal alimentation, it was held, is not to be relied upon, and the use of feeding by esophageal tubes is unnecessary.

DR. CHARLES G. STOCKTON, of Erie County, then reported

A CASE OF CARCINOMA VENTRICULI, WITH THE CONTINUED PRESENCE OF FREE HYDROCHLORIC ACID AND THE ABSENCE OF LACTIC ACID.

DR. MAX EINHORN, of New York County, followed with a paper on

GASTRO SUCCORRHŒA CONTINUA CHRONICA,

a condition in which gastric juice, or a similar fluid, is freely excreted even during the fasting period.

The afternoon session was devoted to the Discussion on Surgery, the special theme being

THE PROGNOSIS OF MALIGNANT TUMORS AS MODIFIED BY THEIR MANAGEMENT.

DR. JOSEPH D. BRYANT, of New York County, in opening the discussion, said that statistics showed that carcinoma is on the increase in this country. Those organs or parts of the body having a special physiologic significance, and the most exposed to the effects of perverted habits, are the ones most frequently affected by malignant disease. The fact that during the first forty-five years of life, the time of greatest vulnerability and activity, there is the least malignant disease, would argue against the theory of malignant infection. In considering the management of these cases, Dr. Bryant said that the local treatment of malignancy should be characterized by prompt discovery and acknowledgment of the presence of a tumor, prompt advice as to treatment, and the prompt removal of the growth and all infected tissues. The diagnosis could be made certain at an early date by microscopic examination of a small portion of the growth removed with a "harpoon;" although an exploratory operation is the only true test of the exact state of affairs. The latest and most radical methods of operating for the removal of malignant disease of the female breast now gave twenty-six per cent. of practical cures—those cases in which no recurrence takes place for three years after the operation. The use of special toxins should be considered as an aid and not as a substitute for the knife.

DR. JOHN W. S. GOULEY, of New York County, spoke of the effect of early detection and prompt ablation of malignant tumors. He said that when both sarcomata and carcinomata are excised in their incipiency, the period of immunity is greatly prolonged. His experience has taught him that the majority of external malignant tumors have developed as benign growths, and have become malignant by a retrogressive process.

DR. EDWARD K. DUNHAM, of New York County, discussed

THE METASTASIS OF TUMORS.

A carcinoma, he said, has no clearly defined boundary, and its infiltration of the surrounding tissues may be looked upon as a sort of metastasis. The time when metastasis occurs bears no relation to the size and age of the primary tumor. As soon as any tumor forms it is liable to metastasis; hence the logic of prompt ablation.

DR. CHARLES PHELPS, of New York County, said that as no one can predict the time when a benign tumor may take on malignancy, the rule should be to promptly remove all accessible tumors.

DR. PARKER SYMS, of New York County, speaking upon the question of

THE KNIFE VERSUS CAUSTICS IN THE REMOVAL OF MALIGNANT DISEASES,

said that in the use of caustics pure guesswork is substituted for the intelligence and skill of the surgeon; that the action of the caustic establishes a direct communication between the diseased mass and the surrounding tissue, thus favoring infection; and that the result is more disfiguring than when the knife is used.

DR. FREDERICK HOLME WIGGIN, of New York County, spoke of

THE IMPORTANCE OF THE COMPLETE REMOVAL OF A MALIGNANT GROWTH AND OF THE RAPID CICATRIZATION OF THE WOUND.

He quoted statistics showing that when the lymphatic glands are not removed with the diseased mass, recurrence takes place in as many as 45 per cent. of the cases, whereas according to Dr. Dennis 25 per cent. of his cases of carcinoma of the breast have remained three years or over without a recurrence of the disease. It should, however, be remembered that it is not enough to remove only those glands that are enlarged and palpably diseased; all the lymphatic glands in the vicinity of the disease should be extirpated.

DR. FREDERIC S. DENNIS, of New York County, said, regarding the constitutional remedies and so-called specifics for malignant disease, that experience has shown that any beneficial action that they possess in certain cases is really due to their action as general tonics. He has seen a few cases in which supposed sarcomata have been rapidly reduced under a course of potassium iodid, but there is a possibility that these tumors were gummata. The spontaneous disappearance of tumors has been observed occasionally, but it is a mere surgical curiosity. It has been assumed by surgeons, when a tumor does not recur within three years after an operation, that the case is cured, for experience has shown that recurrences after this period take place in only 2 per cent. of the cases.

DR. STEPHEN SMITH, of New York County, speaking of recurrent tumors, said that they should be attacked and removed, whenever and wherever practicable.

DR. WILLIAM B. COLEY, being invited to speak of the therapeutic value of toxins in the treatment of malignant disease, said that he had analyzed 100 cases which he had treated during a period of four years with the mixed toxins of erysipelas and the bacillus prodigiosus. No case of pure round-cell sarcoma has been cured, and the melanotic sarcomata and osteo-sarcomata are about as obstinate to the treatment. The spindle-cell variety is more amenable, so that in the 66 cases of sarcoma more than half have been improved by the treatment.

DR. AUSTIN FLINT, JR., of New York County, presented a study of some very carefully compiled statistics representing

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OBSERVATIONS ON THE MINOR DEGREES OF CONTRACTED PELVIS.

They embraced the carefully kept records of 6000 cases of labor occurring in the tenements. Minor pelvic contractions were found in a little over 10 per cent., and in the majority of these delivery was effected spontaneously and with a good result as regards both mother and child. When the true conjugate was less than three inches operative interference was usually required.

At the evening session the President, Dr. Austin Flint, delivered his address, entitled

THE COMING RÔLE OF THE MEDICAL PROFESSION IN THE SCIENTIFIC TREATMENT OF CRIME AND CRIMINALS.

He maintained that the object of our criminal laws should not be to punish, but to reform the criminal when this is possible, and in any case to protect society. The first important duty is to separate the curable from the incurable criminals, and treat those two great classes differently. In his opinion we should be able to prevent a murderer from repeating his crime without committing a legalized murder—capital punishment should be relegated to the last.

The proceedings of the last day of the meeting of the Association were opened with a paper by Dr. Zera J. Lusk, of Wyoming County, on

A NEW AND ORIGINAL METHOD OF OBTAINING MATERIAL FOR SKIN GRAFTING.

The author said that being called upon to treat a very severe and extensive burn, it had occurred to him to take some of the exfoliated epithelium and apply it to the granulating surface. A piece one inch square was softened and sterilized in warm boric-acid solution, divided into twelve grafts, and applied to the wound. Seven out of the twelve rapidly developed into vigorous islands of skin. The resulting skin was firm and well-nourished, and there was a marked absence of cicatricial contraction.

Space forbids allusion to all the interesting papers that were crowded into the closing hours of the meeting, but mention must be made of one by Dr. Frederick Holme Wiggin, of New York County, on

THE TECHNIC OF MAUNSELL'S METHOD OF INTESTINAL ANASTOMOSIS.

He had sent a letter to Professor Maunsell asking for further details regarding the method, but before his letter reached its destination Professor Maunsell was dead. His widow requested Dr. Wiggin to revise the descriptions of this operation. This was the object of the paper. The statistics of eleven cases in which this operation had been employed were presented, and they showed that nine of these patients had recovered and that two had died, but that the death in neither of these cases could be fairly attributed to any failure of the suture or to the method of applying it. The greatest advantage of Maunsell's method lies in the fact that no special appliances are required, and it is easy and rapid of execution.

Dr. Darwin Colvin, of Wayne County, was elected President of the Association.

## THE EMPLOYMENT OF PRISONERS.

*To the Editor of* The Medical News,

Sir: I have read with pain your editorial, "The Employment of Prisoners," in the October 12th issue. The writer of this editorial is evidently unsympathetic with the labor movement, hostile to socialism, and misinformed in some few points concerned. In each of the four propositions into which this editorial is formally divided there is an opportunity for friendly criticism.

1. This amendment to the constitution is demanded by the laboring classes because the penitentiaries of the State and nearly all the States have gone into the manufacturing business; and, not being obliged to pay wages equal to manufacturers outside the walls, they have been able to undersell all competitors in the market. Manufacturers outside have been obliged to reduce the wages of their men until they were too low to keep up a decent standard of life. In this way, trade after trade has been ruined for free labor can never compete with bond labor. The amendment was not submitted to placate the "labor"-element, but because all intelligent laboring men demanded it. If this amendment was inspired by "socialism," and I truly believe it was, it will not make anyone who understands the subject of prison labor think less of that cult.

2. The State of New York has in its public needs work enough to keep all its prisoners busy, Eugene Smith to the contrary notwithstanding. The fact that all labor for the State which is to be done by outsiders must be done according to the contract system does not prevent the employment of prisoners on any public work. This criticism of the law is before the fact. The Yates law was killed purposely, not by its enforcement, but by its perversion. The laboring classes, so far as they are informed, would abolish all contract labor on public work and have all such work done by direct employment of the several trades.

3. The writer of the editorial assumes that the State cannot under this law give enough work to keep the prisoners busy, that therefore in enacting the law those citizens outside the prison legislate those inside into idleness, and that this latter act is contrary to some high social or ethical principle which I will state in the words of the author, "One class of men may not forbid another class of men to work." I deny the first assumption, and have stated my reasons sufficiently under the previous proposition (2), but I wish to call the writer's attention to the fact that the very essence of the competitive system, for which the editorial writer evidently stands as spokesman, depends upon the right of the capitalist class to forbid the laboring class to work at all, or, if they allow them to work, then to work only at such wages as the capitalists choose to give. There are none more anxious that all should have the opportunity to work than the Socialists, and they demand, too, that those who work shall have the products of their labor for their reward, and that none shall have these things who do not work.

4. To talk of inhumanity in relation to this amendment is absurd. The prisoners will be kept at work not by greedy contractors under the lash and the bayonet, as they are under the contract system, but by men who are not interested in capitalistic production, but in the

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health and reformation of the prisoners and in the doing of honest work. It is eminently unfair to assume that this law contemplates the idleness of the prisoner or would result in such a state.

The medical journal may not be considered the best place to discuss this subject, yet every doctor is interested in the question involved. If prison labor goes into the market it beats down the wages of all laboring men. If the wages of the laboring classes are reduced the remuneration of our profession is thereby reduced with still greater rapidity. The medical profession was one of the first trades-unions supported by law; and yet, in these days there are many trades better informed on social movements than our profession is. The spirit, too, of humanity and inclusive fraternity permeates the new trades-union movement more fully and vitally than the same spirit or a similar spirit does our profession. It is a pity that in this first republic the literary proletariat is not in as close touch with the laboring classes as it is in Germany, France, and England. The fact that medical men are so bitter against the "labor-movement" as they seem everywhere in the United States to be, and the further fact that they so readily lend themselves to exploitation by railroads, manufacturing companies, and mining companies, greatly to the discredit and financial loss of the profession, these two facts show how completely commercialized the medical profession has become. The gentlemen of the press and the younger generation in the metropolitan universities are rapidly coming to sympathize with the labor-movement even though they do not come in such close personal contact with the people as medical men do, and do not have that financial interest in the betterment of the laboring classes which could influence the most selfish doctor. The press is silent on all that interests the people because the advertisers subsidize our great newspapers. The Board of Education of one of our great cities was lately robbed of $7,000,000, but it was impossible to secure the publication of the fraud in any daily. It is time that the medical profession enlightens itself on the labor movement, which is the reality, and on socialism, which is the ideal of progress and hope and fraternity, and do this before our profession is reduced to pauperism or sycophancy.

I do not hesitate to pronounce the amendment to the Constitution of New York a step forward. The Constitution of the United States and the several States are liberally interpreted to protect property, but very strictly interpreted when they define the rights of humanity. I feel that the editorial is misleading and harmful, and also that it is prejudicial to the labor movement and to socialism, in both of which my hopes and my heart are placed.

BAYARD HOLMES, B.S., M.D.

CHICAGO.

[Dr. Holmes's letter is evidently the sincere expression of his own private judgment, but it contains a statement of surprisingly authenticated facts by which the value of that judgment can be estimated. As a statement of our correspondent's own opinion the letter is interesting, but it does not seem to us to be especially valuable for an elucidation of the question at issue. This important question can only be gauged by a study of figures and facts—not by a mere announcement of doctrine. With much of the contents of Dr. Holmes' letter we can, as a medical journal, have but little, if any, concern. His assumption, however, that the medical profession is not in sympathy with the laboring masses is entirely gratuitous, and, like his other statements, is entirely without accompanying facts to prove it. That he is radically wrong in this assumption we have not a particle of doubt. The medical profession, as a benevolent, progressive, and humane body of men, is probably as closely in sympathy with struggling and suffering humanity as it is possible for any body of men to be; but as an educated and scientific profession it probably views askance the numerous unreasonable and sometimes unjust demands of labor leaders. The medical profession, in other words, can distinguish plainly between the laboring masses on the one hand and socialistic doctrinaires on the other.

The main facts stated in our editorial article on the "Employment of Prisoners" are not confuted by our correspondent. He marshals no facts to disprove them. He merely states his own opinions. The facts upon which we relied are that the amendment to the New York State Constitution is against the spirit of our laws, because it embodies a partisan and discriminating measure in the Constitution; that the policy of it was dictated by the partisan movement now miscalled "socialism;" that in effect a former law, exactly resembling this amendment, resulted in increased disease, insanity, and death among the prisoners, and an increased burden of taxation for the people; that the amendment is unjust, because it is founded on the principle that one class of men may forbid another and helpless class of men to work; and that finally it is inhuman, because it condemns prisoners to solitary confinement without labor, which notoriously means their physical, mental, and moral deterioration. All these facts, so far as we can see, are unanswered in our correspondent's letter; some of the most important of them in fact (as relating to the health and moral welfare of the convicts) are practically ignored.

The facts and figures given by Mr. Eugene Smith and by the Superintendent of State Prisons remain unaffected; they are the statements of experts and authorities who certainly ought to know, and are not merely unsubstantial expressions of personal opinions and prejudices.

These experts say that under this amendment *one per cent.* of the prisoners can do all the work that is available. Also that under the Constitution all public work must be done by contract—"by outsiders," as Dr. Holmes admits. If all public work is to be done by contract by "outsiders," how are the prisoners to obtain any of it, especially when forbidden by this amendment to work? Again, according to Dr. Holmes, the laboring classes would even abolish all contract or competitive labor, and have all public work done by direct employment of the several trades. If this were done, we ask, Where would the prisoners come in for a share, especially as they are debarred by this very amendment from productive labor? All sophistry aside, the spirit and working of this amendment are to enforce idleness upon the prisoners. Their rights and welfare are completely disregarded.

Our correspondent, like too many who enlist in what is miscalled "socialism," entirely ignores some of the higher ethical questions involved. Has the State, any

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more than the individual, the right to do evil that good may come? For a possible benefit to a few free artisans has the State a right to do inevitable and much wrong to the convicts? In our judgment there can be but one answer to these questions.—Editor, Medical News.]

### INACCURACY IN SCIENTIFIC TERMS.

*To the Editor of* The Medical News,

Dear Sir: In looking over my summer numbers of your journal the editorial on "Inaccuracy in Scientific Terms" attracted my attention, and it seems to me in behalf of accurate prescription-writing and the King's English in general that the inaccuracies in the editorial should be pointed out.

You say "in a recent State examination the applicants were asked to describe the alkaloid 'strychnia.'" It may be hypercritical to say that this word is obsolete, but as a term for a substance designated by chemists by a slightly different name, the word *strychnia* was made current by the Pharmacopeia, but changed by the terminology of the Pharmacopeia of 1880 to *strychnina*, and careful writers will either use the strict chemic term *strychnin* or the approved pharmaceutic term, *strychnina*.

The fact is that strychnia is a perfectly correct term, though an old one; whilst the term strychnin is not official, and, as I hold, therefore, not correct. Strychnine is just as much an official term of the United States Pharmacopeia as is strychnina. The Pharmacopeia always gives two official names—one in Latin, one in English; the official Latin name is strychnina, the official English name is strychnine. In my opinion, the Latin name should not be used in the text of an article written in English; if it is used it should be put in italics.

The matter is of importance because the termination "ine" is an official one adopted to distinguish alkaloids; whereas the termination "in" indicates that the substance is not an alkaloid; if of a vegetable nature it is probably a glucoside. It seems to me absurd to expect medical men to keep pace with the changes of chemical nomenclature, but certainly in pharmaceutical chemistry the proper nomenclature for the physician is that of the official standard of the country.

Yours truly,

H. C. Wood.

1925 Chestnut St., Phila, September 30, 1895.

[The News, it will be observed by the quotation which Dr. Wood gives, did not say that the word "strychnia" is erroneous, but that as a pharmaceutic term it is obsolete. Dr. Wood correctly observes that in pharmaceutic chemistry the proper nomenclature is that of the official standard. Now the official standard, the United States Pharmacopeia, does not mention the word strychnia, neither in the index nor under the heading "strychnina," consequently, as The News said, the word is obsolete as an official designation of an alkaloid of *nux vomica*. Dr. Wood is possibly not aware that as far as concerns the spelling of scientific terms, "the King's English" does not control in The News office. (See, *e. g.*, The Medical News of June 16, 1894.) The spelling "strychnin" is therefore equivalent to "strychnine," and is recommended by the American Association for the Advancement of Science. No criticism could have been made if the latter word had been used in the question criticised. Space will not permit us to enter upon a discussion of the point raised in regard to the value of the termination as a means of distinction between alkaloids and glucosids. This point has been previously discussed by us. As a matter of fact the distinction is of no practical value, and has been abandoned in the interest of simplicity. Even in the Pharmacopeia the termination "in" is used loosely, since "lupulin" and naphtalin are not glucosids.—Ed., Medical News.]

### THE TREATMENT OF TYPHOID FEVER.

*To the Editor of* The Medical News,

Sir: Every physician who has attempted the treatment of typhoid fever by the Brand system must at times have felt, if not expressed, Dr. Osler's prayer "for a method which may be, while equally life-saving, to put it mildly, less disagreeable." Such, at least, has been my experience in private practice. It was, therefore, a positive joy to me to read Dr. J. Burney Yeo's contribution on the "Management of Fevers, and Particularly of Typhoid or Enteric Fever," published in the June number of *The American Journal of the Medical Sciences*, 1894. Since reading it I have employed no other method, and my experience, like that of Dr. King (Medical News, March 2, 1895), fully substantiates, so far it goes, all the claims made for it by the author. I report seventeen cases so treated without a fatality.

W. H. Patterson.

Reno, Nevada, October 16, 1895.

### "LIFE'S" ANTIVIVISECTION-CRUSADE.

*To the Editor of* The Medical News,

Sir: I write to thank you for the sensible and outspoken letter to *Life*, which is reprinted in the News of last week. Since the appearance, some months ago, of a venomous and malicious antivivisection-cartoon, I have neither bought nor looked at *Life*. For years I had enjoyed its pages, but a journal that insults my best friends insults me, and I shun it as I would a blackguard of the slums. Yours,

William Osler,

Johns Hopkins University,

Baltimore, October 21st.

## NEWS ITEMS.

***The American Electro-Therapeutic Association*** held its fifth annual meeting in Toronto, Canada, on September 3, 4, and 5, 1895. Dr. James Thorburn, of Toronto, welcomed the visiting members on behalf of the resident profession. Dr. Charles R. Dickson in an address also welcomed the members.

The President, Dr. A. Lapthorn Smith, of Montreal, then read his address on "Electro-Therapeutics in General Practice." This was followed by the reading of the reports of committees on scientific questions. Then followed the reading of papers:

Further Studies of the Physiologic Effects of the Sinusoidal Current and a Description of a Perfected Apparatus for Producing both a Sinusoidal and a Direct or

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Galvanic Current, by Dr. J. H. Kellogg, of Battle Creek, Mich.

The General Therapeutic Effect of the Alternative Current of High Frequency and of High Tension, by Dr. G. Apostoli, of Paris, France.

Alternating Dynamo-Currents in Therapeutics, by Dr. W. J. Herdman, of Ann Arbor, Mich.

Cataphoresis: Non-Conducting Drugs, fluids may be diffused by employing Conducting Electrodes, in solution, by Dr. W. J. Morton, of New York.

Further Successes in the Treatment of Neuralgias by Cocain-Cataphoresis, by Dr. Frederick Peterson, of New York.

Some Comments upon Cataphoresis in Throat and Dental Diseases, with the exhibition of an Improved Galvanic Current-Adapter, by Dr. W. C. Phillips, of New York.

Zinc-Amalgam Cataphoresis, by Dr. G. Betton Massey, of Philadelphia, Pa.

Electricity in the Treatment of Heart-Affections, by Dr. W. F. Robinson, of Albany, N. Y.

Report on the Electrolysis of Cystic Goiters, by Dr. C. R. Dickson, of Toronto, Canada.

Gautier's Method of Electrolysis in Urethral Stricture, by Dr. Robert Newman, of New York.

Electro-Therapy as a Means of Diagnosis in Gynecology, by Dr. Georges Apostoli, of Paris, France.

The Advantages of Electric over Surgical Treatment, by Dr. F. H. Wallace, of Boston, Mass.

Discussion: Gynecology, by Dr. A. H. Goelet; Genito-Urinary, by Dr. R. Newman.

Faradism in Obstetrics, by Dr. R. J. Nunn, of Savannah, Ga.

Ovaritis, and its Treatment by Electricity, by Dr. C. G. Cannaday, of Roanoke, Va.

The Apostoli Treatment of Uterine Fibromata, by Dr. E. R. Corson, of Savannah, Ga.

The Physiologic Action of Periodic Induced Currents in Gynecology, by Dr. A. H. Goelet, of New York.

Notes on the use of the Continuous Current in Arthritis Deformans, by Dr. H. S. Jewett, of Dayton, Ohio.

The Value of the Sinusoidal Current as an Adjunct in the Treatment of the Acute Insanities, by Dr. Robert Safford Newton, of New York.

Some Experiments with Static Electricity in Functional Diseases of the Nervous System, by Dr. Francis P. Bishop, of Washington, D. C.

Current-Controller for the Static Induced Current. A New Rheostat, by Dr. W. J. Morton, of New York.

An Interrupted, rather than a Continuous Douche in Franklinization. A New Form of Administration, by Dr. W. J. Morton, of New York.

Hydro-Galvanism of the Urethra, by Dr. Robert Newman, of New York.

Division of the Faradic Current to Secure Intermitting Physiologic Tetanus. A new Clock-work Apparatus, by Dr. W. J. Morton, of New York.

New Transformer to Combine the Galvanic and Faradic Currents in a Single Treatment, by Dr. W. J. Morton, of New York.

Electricity Considered in its Relation to Surgical Gynecology, by Dr. O. S. Phelps, of New York.

The following officers were elected for the year 1895–1896, viz.: President, Dr. Robert Newman, of New York City. Vice-Presidents, Dr. Holford Walker, of Toronto, Canada; Dr. D. B. D. Beaver, of Reading, Pa. Treasurer, Dr. R. J. Nunn, of Savannah, Ga. Secretary, Dr. Emil Heuel, of New York City. Executive Council, Dr. W. J. Morton, of New York City; Dr. G. Betton Massey, of Philadelphia, Pa.; Dr. W. J. Herdman, of Ann Arbor, Mich.; Dr. Emil Heuel, of New York City; Dr. Wendell C. Phillips, of New York City.

The President has appointed the following Committees for the year 1895–1896, viz.: Committee on Induction-Coils and Alternators: Dr. A. H. Goelet, Chairman; Dr. G. Betton Massey, Mr. A. E. Kennelly. Committee on Meters: Dr. M. A. Cleaves, Chairman; Dr. O. B. Douglass, Mr. W. J. Jenks. Committee on Static Machines and Condensers: Dr. W. J. Morton, Chairman; Dr. W. J. Herdman, Dr. J. H. Kellogg. Committee on Constant Generators and Controllers: Dr. W. J. Herdman, Chairman; Dr. Robert Newman, Mr. R. G. Brown. Committee on Electrodes: Dr. C. R. Dickson, Chairman; Dr. Lucy Hall-Brown, Dr. E. C. Riggs. Committee on Electric-Light Apparatus for Diagnosis and Therapy: Dr. J. H. Kellogg, Chairman; Dr. E. C. Riggs, Mr. J. J. Carty.

It was decided to hold the next, the sixth annual meeting of the Association in Boston, Mass., in the latter part of September, 1896.

***Dr. George A. Mursick*** died of diabetes, at Nyack, N. Y., at the age of sixty-one years. He was graduated from the College of Physicians and Surgeons in 1860, and in January, 1863, entered the Union army as assistant surgeon. He was promoted to be surgeon in charge of the General Hospital at Duvall's Cliff, Ark., in November, 1864, and became medical purveyor of the Department of Arkansas in April, 1865.

***The American Public Health Association*** is to be congratulated upon the October number of its official *Journal*, which contains an admirable report of the Convention of Bacteriologists recently held in New York under the auspices of the Committee on the Pollution of Water Supplies of the Association.

***Dr. Herbert Harlan*** has been elected Professor of Diseases of the Eye and Ear in the Woman's Medical College of Baltimore, in succession to Dr. Hiram Woods.

***The Illinois Medical Journal*** is a new "monthly journal of medicine and surgery," published at De Kalb, Ill., and edited by Dr. H. E. Dunlop.

***Sir Thomas Longmore***, an eminent British surgeon, died on September 30th, at the age of seventy-nine years.

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BOOKS AND PAMPHLETS RECEIVED.

Chronic Tuberculosis. A Study of Four Cases. By E. R. Axtell, M.D. Reprinted from the Colorado Climatologist. 1895.

Traumatic Cyst of the Brain from an Injury Received Twenty-five Years Before. Epilepsy; Operation; Recovery. By J. T. Eskridge, M.D. Reprinted from the New York Medical Journal. 1895.

Calomel. A Study of its Physiologic Action and Therapy in Gastro-intestinal Disorders in One-hundred-and-forty-four Cases. Is it a Diuretic *per se*? By W. Blair Stewart, A.M., M.D. Reprinted from the Journal of the American Medical Association, 1895.

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# THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

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## ORIGINAL ARTICLES.

### A STUDY OF GUNSHOT-WOUNDS WITH REGARD TO THE CAUSATION OF UNCONSCIOUSNESS.

BY J. N. HALL, M.D.,
OF DENVER, COL.;
MEMBER OF THE MEDICO-LEGAL SOCIETY OF NEW YORK.

IN several trials for murder, in which I have been consulted, the question has arisen whether, after a given gunshot-wound, the person wounded could have offered any resistance or committed any aggressive act against the one who had injured him. The utter lack of any literature bearing directly upon this point has led me to write this article, with the hope that it may at least serve as a nucleus about which such information as is obtainable concerning these points may be gathered.

In certain cases the question of the production of such unconsciousness as would preclude any voluntary act upon the part of the person shot is very easily answered. If the brain is extensively disorganized or the cervical cord severed high up, or if the great ganglia of the sympathetic system or the region about the base of the heart are violently disrupted, as by a large missile passing through the chest and abdomen, we would be perfectly safe in stating that unconsciousness, or, we might almost say, death, would result so quickly as to prevent any voluntary act on the part of the injured person. It should be noted, however, that to produce such unconsciousness the extent of the injury below the cervical cord must be enormously greater than in or above that region. Thus in one of my cases a single pellet of shot from a shotgun caused instant death from its passage through the cord at the atlo-axoid articulation, being far more quickly operative in this respect than would the destruction of all of the body below this point have been.

I have many times seen small animals instantly killed by a heavy rifle-ball when the sole injuries were in the abdominal cavity, or the parts posterior to it. In these cases the shock from the extensive tearing of the tissues, exerted through the solar plexus, produced practically instantaneous death. And even in animals of the size of a deer I have seen death as quickly produced when the rifle-ball of large caliber had passed lengthwise through the cavities of the chest and abdomen; although it does not occur, I believe, when only one of these cavities is invaded transversely, unless the base of the heart is involved. This matter we shall consider later. It would seem that the relative amount of damage to the internal organs must be very large for the production of immediate unconsciousness, while, through the action of shock and hemorrhage, such a state may result after an interval from very small wounds.

Although I have had no opportunity of observing a wound by a large missile, in man, involving the whole body lengthwise, analogous to those just mentioned in animals, I anticipate that such injury would produce practically instant death, regardless of lesions of the heart, chiefly because the damage to the sympathetic system would necessarily be so severe. There is obviously much greater opportunity for extensive injury to the internal organs in the case of such a longitudinal wound than in a transverse one, which would commonly invade but one cavity. In fact, many of those wounded transversely, in either of the cavities mentioned, if only the heart, the spinal cord, and the great blood-vessels escape injury, not only do not suffer unconsciousness, but recover, either with or without operative interference, as abundant reports of cases prove.

To the best of my knowledge, no injury to limb or limbs, such as would be possible from any ordinary gunshot-wound (that is, excluding total destruction by missiles from cannon or other ordnance, which injuries do not here concern us), would cause instant unconsciousness, although the severest shock may result from extensive fracture of bone, especially in conjunction with severe hemorrhage. But this would not preclude voluntary action on the part of the person injured for a certain time afterward. In fact, I have seen repeated instances in antelope, elk, and deer, in which extensive gunshot-injuries, approaching utter disorganization of one or more limbs, existed, even including in some cases practically a whole quarter, without apparently interfering very much, for the first few minutes, with the speed of the animal as it endeavored to escape. In fact, the severance of both front legs below the knee, or of both hind ones below the hock, or the complete destruction of any one quarter, so far as the bony parts are concerned, will not prevent the temporary escape of an antelope from the hunter if he be afoot. This common experience proves.

The popular idea seems to be that any bullet-

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wound of the heart produces instant death. I have recorded elsewhere[1] several instances in game animals in which long distances were covered after such wounds, and so many cases[2] have been recorded in man of the prolongation of life for many hours, or even of recovery, after being shot through the heart, that it is needless to quote them here. My own experience in the study of cardiac wounds, in game-animals chiefly, for I have seen but few in man, would lead me to the conclusion that transverse wounds through the lower portions of the heart, giving rise to punctures rather than extensive lacerations, do not commonly cause a cessation of life for a time varying from some considerable fraction of a minute to many minutes or even hours, and especially if the puncture be valvular in character, so as to prevent the loss of much blood. If, however, the wound involve the base of the organ, with extensive laceration of the surrounding parts, death is practically instantaneous. It would seem that injury to the muscular walls of the organ is much less efficient in the production of immediate death than destruction of the cardiac nervous mechanism, serious irritation of the latter producing almost instant death from shock.

It is not necessary to quote here in detail the instances, chiefly from the hunting-field, upon which I have based these conclusions, but it may be briefly stated that two wild geese flew, respectively, one-fourth and three-fourths of a mile after being shot through the heart each with a single pellet of BB shot, the base being in each instance uninjured. In several instances antelopes and deer ran several rods after being shot with a rifle-ball in similar manner; while, on the other hand, death was practically instantaneous in several of these animals in which the base of the heart was extensively lacerated.

In one murder-trial, in which I testified, a woman of twenty-two years of age was shot with a 38-caliber revolver, the ball entering at the left acromion process, and ranging downward and inward through the base of the heart. From the position of the body and the circumstantial evidence, it seemed certain, as was stated to the jury, that she had not moved further than to fall back upon the bed after receiving the wound.

But, on the other hand, death *may* result instantly from a wound of the precordial region; or even, according to Erichsen, from the concussion resulting from the discharge of a pistol containing powder alone, if held directly over the heart, as it does occasionally after a blow upon the precordial region. In such a case one could only say that unconsciousness might well have resulted from the injury, and, in the lack of any other discoverable cause of death, that it had almost certainly done so. It is well to state here, however, the fact so commonly recognized by surgeons, that in times of excitement one may receive an injury which will shortly prove fatal, and yet not be aware of it for some time—perhaps even for several minutes. It would appear that the nervous system is so highly tuned at such times that it does not respond to reflex irritations as readily as in the absence of excitement. A case illustrative of this statement will be found under brain-injuries in this article.

It is in regard to injuries involving the brain that the question of the production of immediate unconsciousness assumes the greatest interest. We may state broadly that if the medulla or the great centers at the base of the brain are wounded by a bullet, instant unconsciousness must result; with any other wounds involving the brain-substance it will with very great probability result. But there is a very broad area of uncertainty. Many instances have been recorded in which the entrance of a small bullet into the anterior part of the brain has not prevented the firing of a second shot on the part of the suicide. Personally, I have not observed such a case, however. But, aside from injuries by the smallest missiles in the anterior parts of the brain, we may speak with almost absolute certainty with regard to the production of unconsciousness, for the jar to the brain from the blow of the bullet upon the skull would produce such a result even if the damage to the brain were not sufficient to do so.

Many injuries to the brain from bullets of moderate size and low velocity do not cause more than a temporary loss of consciousness, and the subjects are seen by the surgeon, after the lapse of half an hour or more, apparently sound of mind. These are the cases in which the ball has lost its momentum in passing through the skull, and has consequently done little damage to the brain-substance excepting to make a passage for itself for a short distance into the brain. It is apparently well established that, in the case of the rifle-bullet of high velocity, and especially if fired from the modern military weapons using nitro-powders, and giving an enormous initial velocity to the bullet, the transmission of the force from the displaced particles of brain (and this rule applies to any other of the soft organs as well) to the adjacent parts is such as to disorganize much of the tissue surrounding the original track of the missile. Under these circumstances a much slighter wound would be necessary to produce unconsciousness or death than in the case of a bullet of low velocity, especially if it were light in weight. Thus I have

[1] Scribner's Magazine, October, 1891: "Actions of Wounded Animals." Recreation, February, 1895: "The Vulnerable Spot."

[2] Sanson and Ollivier alone report twenty-nine cases in which patients lived from four to twenty-eight days after wounds of the heart.

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recorded elsewhere[1] an instance of instant death in a grizzly bear, an animal certainly as tenacious of life as any we have, from a mere furrow less than a quarter of an inch in depth through the cortex of the brain, without injury of the skull excepting the removal of the bone necessary for the production of this furrow. The jar to the brain from a bullet of great velocity, as in this case, was alone sufficient to injure the organ irreparably. In a similar manner I have known a deer to be killed by the impact of a heavy rifle-ball against one horn, although there was no evidence of fracture of the skull. On the other hand, game animals often escape after such injuries, not directly involving the brain, although temporarily rendered unconscious, as I have observed in several instances, the diagnosis undoubtedly being concussion of the brain.

Slight injury to the brain, and especially if it be unilateral, then, may not produce unconsciousness. It is not very uncommon for a missile from a heavy weapon to strike the skull, and be deflected without the production of such a state. Near the town in which I formerly practised, the town-marshal shot at a negro who resisted arrest, at a distance of only a few feet, with a 44-caliber revolver, striking the culprit on the side of the head. The wound showed that the ball struck the skull and plowed along under the scalp for several inches before emerging, but it did not even knock the negro down, and no unconsciousness followed later. I once examined an express-messenger who had been shot in the occipital region by a weapon of similar size, while seated at his desk in the car. The blow was a very glancing one and did not produce unconsciousness, and probably, as in the case of the negro, because it did not strike with sufficient directness. A direct wound on the skull from such a weapon commonly penetrates, as experience shows. In the Milton Smith case in Denver, the unusually thick skull of a powerful negro was practically disorganized by a bullet from a revolver similar to those already mentioned, the missile having struck at a right angle with the forehead. Still, in those cases in which any bullet of even moderate size has impinged upon the skull, we should commonly look for at least a temporary stunning as a result, as the great majority of such cases would suffer from concussion of the brain. We do not, of course, include mere scalp-wounds in this statement. One must remember how many cases we see in which stunning has resulted from comparatively slight blows upon the cranium, even those given by the fist. Comparing the concentrated and forceful blow of the bullet with the causes so often operative in the production of unconsciousness, it may easily be seen that the bullet must commonly stun the patient if a firm part of the skull be struck.

In one case,[1] in which the ball from a 38-caliber revolver passed into the right side of the neck and thence upward toward the right side of the skull, and in which testimony was introduced to show that the patient was unconscious two minutes after the shot, I declined to say more than that such a wound might have produced this result immediately, there being, in my judgment, insufficient ground for the formation of a positive opinion. Dr. Parkhill had been unable to definitely locate the ball, and it was uncertain, according to his testimony, whether it had struck the base of the skull or not. Even if it had, its force might have been so reduced as to prevent its producing a serious jar to the contents of the cranium. Furthermore, it is well known that a jar of the side of the neck, whether by its influence on the cord, on the pneumogastric nerves, or otherwise, does not seem to be established, not infrequently suspends consciousness for a time, as so often recorded in prize-fights. The evidence in this case finally left no room for doubt on this point. It was shown by the conditions under which the wound in the culprit's neck was inflicted that he could not have caused it himself, and hence it must have been caused by the woman who was found dead in the room with him. As she had received a wound causing instant death, it became apparent that the story of the shooting as given by the man on trial must be true. This was that the woman had first shot him, that he had struggled with her for the possession of the weapon, and that in the struggle it had been discharged, killing her instantly, as was afterward learned, and that after that he knew nothing until he found himself in the hospital.[2] In this case it seems probable that the subject retained consciousness longer than he might otherwise have done, because of the danger of his position.

As bearing somewhat upon the matter we are considering, I will quote here a very interesting case, previously reported, concerning which I was consulted some three years ago. A man on horseback was shot in the neck by one on foot, a single pellet of shot severing the cord at the atlo-axoid articulation. I was asked if he could have retained his grasp upon a knife he was known to have held in his hand at the time of the shooting. There was a suspicion that the knife he carried had been secreted and a larger one substituted, in order to make his killing more justifiable, as the former knife was

[1] Scribner's Magazine, October, 1891.

[1] Reported in "Gunshot Wounds in their Medico-Legal Relations." International Medico-Legal Congress, Chicago, 1893.

[2] See "Gunshot-wounds, Accidental, Homicidal, or Suicidal," by the author, presented at the Medico-Legal Congress, New York, 1895.

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believed to have been only a pocket-knife. He had been the attacking party in the affray. The large weapon was merely laid in the hand, not being grasped by the fingers. As a severance of the cord in this region would instantly relax all voluntary muscles involved, I stated that he could not have retained his grasp upon the handle, and the prisoner confessed that he had substituted the large knife for the small one. He was convicted of manslaughter.

We have dealt chiefly with wounds that *must* produce unconsciousness. It should be stated that other injuries than those considered *may* produce such a state. I should anticipate that the passage of a bullet through the upper dorsal region, and perhaps in most instances through any part of the spinal column above the sacrum, would render the victim unable to offer any resistance to an adversary, although probably not preventing the action of his mind for a time. There is such a vast difference in different men in the amount of vitality exhibited under trying circumstances that it is impossible to formulate any rules for the consideration of such cases. We may, however, summarize the results we have reached as follows (I am under obligations to Dr. J. T. Eskridge for a critical review of the conclusions herewith presented, which he informs me meet with his approbation):

Consciousness must be immediately suspended after gunshot-wounds involving the medulla, the cervical cord above the origin of the phrenic nerve, the great centers at the base of the brain, or the region about the base of the heart, if, in the latter case, the parts are severely lacerated. It will with very great probability be suspended after wounds involving very extensive injury about the solar plexus, or after any injury, by a missile of considerable size, affecting any part of the brain, unless it be the anterior and lateral parts. Temporary unconsciousness at least will probably follow any wound of the brain-substance, or any serious jar to the cervical cord, by a bullet of even moderate size; and temporary stunning or even death often follows the shock from the impact of a bullet against the skull, without gross damage to the brain, and may follow the concussion of the precordial region, caused by the discharge of a weapon in close contact, even though no penetrating wound be produced. In the majority of other injuries from the cause we are considering unconsciousness is secondary to loss of blood, shock, or a combination of these two causes. But in any injury to the spinal column involving the cord, and more especially in the upper portions, although consciousness may be retained, it is not likely that any serious resistance could be offered by the person so injured, excepting that the hands might still be of use in case the lesion were below the upper dorsal region.

## *NEPHRITIS VIEWED FROM THE STANDPOINT OF INDIVIDUAL CELL-LIFE.*

BY W. M. MEMMINGER, M.D., AND W. KNOWLES EVANS, M.D.,
OF CHESTER, PA.

IN spite of the immense array of medical literature of the past and present, and the accumulated experience of the profession, the physician of to-day finds himself constantly confronted with his inability to contend successfully with innumerable physical conditions. This is evidently due to the fact that we recognize and treat disease from the symptomatology of defined organs, as the heart, liver, lungs, stomach, and intestines, and lose sight of the primarily diseased or irritated *organs*, viz., the ultimate protoplasmic particles or cells of which these structures are composed. The study of cell-life proves conclusively that the individual cell is an organ in itself. It must receive its food-materials; it must construct, generate, and eliminate—in short, its functions are as well defined as those of the major organs. These functions the most minute cells are capable of executing thoroughly under normal conditions, *i. e.*, the absence of any form of morbid irritation; but if irritated their functions become perverted. Thus we see that as all tissues of the body are made up of these innumerable minute cell-organs, upon *their health* depends directly the health of the individual.

As these facts are self-evident, we can now apply them to nephritis—that disease which, according to the literature of to-day, is a disease of the *kidney*, followed by various constitutional changes. We shall not discuss the various classifications of nephritis, as they are based solely upon the degree of structural change of the kidney.

The question now arises, Is nephritis or albuminuria primarily a disease of the kidney? We are prepared to state that it is not, and that upon this fact rests all previous failure of treatment. Primarily nephritis is acute or chronic irritation of the cell-organs of the entire body, causing cell-vomiting or the elimination of cell-food, *i. e.*, *albumin*.

We should first understand that disease is irritation. Irritate the lungs and we get the resulting cough and expectoration; irritate the intestines and we get increased discharge; irritate the stomach and we get vomiting. If this is true of the large organs, as the lungs, intestines, and stomach, is it not equally true of the individual cells throughout the entire body? When an irritant is brought in contact with a cell, as occurs through the medium of the circulation in all diseases, we have perversion of function, and a condition similar to that of an irritated stomach—an inability to utilize its furnished materials to promote nutrition, and a throwing off or vomiting of these. In the case of the stomach it is the crude food-materials, while in the cell-

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organs it is the peptonoids or albuminoids furnished to them by the stomach—the evidence of their refusal to utilize these being shown by their presence in the urine and all other sources of elimination.

The recognized causes of nephritis are scarlet fever, pregnancy, alcoholism, mental anxiety, all the eruptive fevers, diphtheria, gout, pyemia, acute articular rheumatism, long-continued cystitis, extensive burns of the skin, malaria, chronic dysentery, ulceration of the bowels, habitual exposure to moisture and cold, cantharides, turpentine, oil of mustard, phosphorus, arsenic, silver nitrate, lead, and mercury. Each of these causes is a specific irritant to the individual cell-organs of the *entire body*, as is evidenced by the symptoms produced. For example, in scarlet fever we have the chill, vomiting, irritation of the fauces, high fever, rapid pulse, heat of skin, bright scarlet rash, headache, great restlessness, and delirium. In acute articular rheumatism there is chill, pain, and stiffness of the joints, nausea, vomiting, hyperpyrexia, profuse acid sweats, and scanty high-colored, albuminous urine. Or if we take alcoholism as an example, we find general increase of fibrous or areolar tissue, followed by contraction and destruction of secreting cells, gastric catarrh, anesthesia and hyperesthesia, delirium, acute and chronic mania, and numerous organic inflammatory diseases. In mercurial poisoning these are its local and constitutional effects: its action upon the red corpuscles even in minute doses, its marked effect upon the nervous and digestive systems, the action on the salivary glands, fetid breath, and emaciation.

Given now an irritant producing acute inflammation, the tendency of the latter is to become chronic, and our efforts to prevent this have been directed to treating the symptoms of the affected parts, and we have failed to extend our treatment to the cell-organs, which are irritated throughout the entire system. Just as surely as the tendency of inflammation in major organs, as lungs, stomach, and intestines, etc., is to become chronic without proper treatment, so surely will the individual cell-organ run into chronic inflammation if the primary irritation is not given a part of our care. In acute gastritis we have acute vomiting; in acute cell-irritation we have acute *cell-vomiting*, or acute albuminuria. In chronic gastritis we have chronic vomiting, and chronic cell-irritation produces chronic cell-vomiting, or chronic albuminuria, resulting in chronic nephritis. Acute gastritis becomes chronic because we have failed to soothe and palliate it; acute cell-irritation becomes chronic from the same cause.

Viewed from this standpoint, albumin in the urine is the direct symptom of either acute or chronic general cell-irritation; the hypersensitive condition of cells causes them to repel or throw off their good material. Albuminuria and the changes in the kidneys are but secondary.

If from irritation of the cell-organs we have perverted functions, or throwing off of cell-food, a resulting malnutrition of the cell must occur, and a consequent degeneration of the entire system. This is simply evidenced by the general conditions gradually evolved in nephritis, the proliferation of tissues of low vitality, the multitudinous degenerations, and general anasarca.

A food-substance taken into the stomach, if not accepted by it, is eliminated either by vomiting or by passage through the intestines more or less unchanged, frequently giving rise to destructive changes in the channel of elimination. Food-material likewise taken into the blood, if refused by the cell-organs, must necessarily be eliminated. As the kidney is the principal source of elimination of the products of the blood, it suffers in like manner.

Not only does the kidney suffer from being the avenue of elimination, but the structural changes found to exist in it are due to the presence of tissues of low vitality, constructed of badly nourished cells. Like changes may be found in all portions of the body; the primary enlargement and subsequent contraction of organs and the general sclerosis, the pale, flabby, edematous tissues are in themselves evidences of cell-impoverishment.

Simon, in his recent article on "Functional Albuminuria," or the "Albuminuria of Da Costa" (*New York Medical Journal*, September 14, 1895), after referring to the writers of the day on this subject, says: "After carefully surveying such literature, there can remain no doubt in one's mind that an albuminuria may occur in the absence of organic changes affecting any of the tissues of the body." Now, as the presence of albumin in normal urine must yet be proved, the so-called functional albuminuria is simply the result of general cell-irritation, and although the article referred to is full of evidence of such irritation, the author has failed to recognize it as the cause of the albumin being in the urine without structural changes taking place. He is very right, however, when he states that such a condition may result in chronic interstitial nephritis, with all its structural changes. All that is necessary is to let this primary acute cell-irritation, without structural change, become chronic.

In the treatment of nephritis our first duty is to remove the cause of the general cell-irritation, and, second, to soothe and palliate the irritated cells (as we soothe the irritated cells after a burn or external application of an irritant by bland ointments, oils, etc.).

In regard to general treatment, the promotion of all that tends to good hygienic conditions, the elimination of all forms of mental anxiety, rest, and diet, are all important. Medicinally, opium and

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cod-liver oil are our sheet-anchors. Mental anxiety must be avoided, as it is a direct cause of cell-irritation and its resulting albuminuria. To be beneficial rest must be complete, not only bodily rest, but cellular rest. This calm and peaceful sleep will furnish us. By rest we do not mean the absolute "rest-cure" of Weir Mitchell, but the normal rest and sleep of the healthy animal. Sufficient moderate exercise in the open air must be secured for hygienic purposes.

The ordinary "milk-diet" would seem to be the best, as milk is a non-irritating form of food, and so it has proved to be in regard to decreasing the amount of albumin eliminated, but the general condition of the patient suffers because milk is an insufficient food to sustain the normal life of an adult, and contains too much water. Our ordinary foodstuffs are not irritating to cell-life in themselves; but are often made so when prepared in the usual palatable forms. Wholesome meat served rare, plainly prepared without condiments (salt in small quantities alone is allowable), should be taken freely. All the cereals may be used, but care must be exercised to avoid fermentative changes taking place in the stomach, as they may generate acids of an irritating character. Only a few vegetables are permissible, as a number of them generate products of irritation. The white potato we would recommend as the principal vegetable.

A general idea pervading all literature upon this subject is that the taking of nitrogenous foods directly increases the amount of urea in the blood. This is so, but it is not the taking of the nitrogenous foods that increases the urea, but the refusal on the part of the cells to assimilate and utilize the albuminoids furnished to them. Urea we do not consider to be alone the result of tissue-destruction, but also of food-destruction. Thus our efforts to rectify the amount of urea must not end by stopping the supply of nitrogenous foods (which are so important to the sustaining of the general health of our patient), but should also lead to allaying the irritation of the cells so that they may receive the albuminous products.

In regard to drugs, opium is best adapted to our wants, as our object is to allay cell-irritation. Entering directly into the cell-protoplasm, it soothes their hypersensitive condition, and secures the cellular rest that is all-important.

The opium should be given in as small quantities as will meet the indications, and should be continued indefinitely, Scanzoni and Loomis having amply demonstrated the safety and value of morphin, even in the most serious calamity of nephritis, *i. e.*, uremic coma.

At first there may be some resistance on the part of the cells to respond satisfactorily to the drug, as there is on the part of the stomach, but this is overcome by its continuance. Morphin bimeconate is by far the preferable form of exhibiting the drug, as it is the most free from disagreeable effects.

Cod-liver oil is strongly indicated, because in doses suited to the powers of assimilation it improves the condition of the nervous system, causes a rapid increase of urine and perspiration, increases the appetite, improves nutrition, enhances the number of red blood-corpuscles, increases healthy cell-formation, and exerts a general alterative effect. In addition, its phosphorus, iodin, and bromin exist in organic combination capable of being readily appropriated by young cells. In case the stomach does not receive it kindly, we have the ready mode of introducing it into the blood by inunction and gentle massage. This plan should always be used if the stomach refuses the drug. We would strongly urge the avoidance of all irritating drugs, such as the pharmaceutic preparations of iron, the giving of quinin, strychnin, cantharides, digitalis, turpentine, arsenic, etc. Pilocarpin and mechanical purgatives are, however, permissible and of value if serious kidney-destruction has occurred.

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## *EPITHELIOMA OF THE UPPER JAW.*

BY FRANK WISTER THOMAS, M.D.,
OF GERMANTOWN, PA.

WHILE carcinomatous affections of the upper jaw, beginning in the antrum, are by no means common, they are yet of sufficiently frequent occurrence to be accurately described in the standard text-books on surgery, and would be easy of recognition by any careful observer, particularly if he were at all familiar with the affection as occurring in other parts of the body; but epithelioma beginning in the mucous membrane of the upper jaw is so rare an occurrence that the ordinary text-book writer has failed adequately to portray it.

In an examination of a number of standard authorities, while descriptions of the disease as occurring in the tongue, on the cheek, in the pharynx, on the palate, and in the larynx were full and accurate, yet in only one work, viz., *Bond's Dental Medicine*, did I find any description that would throw light upon the case about to be described; and this author quotes Mr. Liston and Professor Mütter as both regarding carcinoma of the gums as exceedingly rare. According to his description, a carcinoma in the gum has the distinctive qualities of hardness, acute, lancinating pain, and inequality of surface; although one form may occur, presenting the appearance of a soft, spongy, bleeding fungus, accompanied by great sensitiveness and great pain. Carcinoma of the jaw, according to him, may occur in two forms—the occult and the open; the former generally preceding the latter

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and presenting itself in the form of a hard, dense tumor of slow growth, seated in the glandular structure. At first this tumor is nearly insensitive, but subsequently causes sharp, darting pains; and as the disease progresses the skin adheres to the tumor, corrugates or puckers, changes color, and ulcerates.

The resulting ulcer is both painful and irritable; discharges a thin ichor, which is, in the majority of cases, devoid of fetid odor, except in the later stages. Its edges are hard and irregular, "reversed and contorted." The sore manifests no tendency to form healthy granulations, but spreads among the surrounding tissues, which successively harden and ulcerate and become carcinomatous. Lymphatics propagate the disease to the nearest glands, which are found swollen, indurated, and often ulcerated, and the pain is burning and scalding.

Sometimes such an ulceration occurs without the preceding scirrhus. When this is the case, the ulcer presents an even, smooth surface, with little secretion; the open sore rarely yields even to surgical remedies. Its cause is a matter of controversy; its origin is ascribed to a wound or a pinch, but this can only be occasioned when there is a constitutional tendency to the affection. That the disease is a degenerative one is evinced by the fact that it invariably occurs in the declining period of life, like all other forms of the disease; but while other forms have, in rare instances, occurred in youth (the late Professor Gross having observed an encephaloid of the antrum in a child of five years), I find no mention of the form we are considering occurring in early or middle life. Its relation to other degenerative diseases has not been thoroughly investigated. Charcot, however, significantly says, in speaking of the relation of gout to carcinoma in the aged: "I can affirm that, in nodular rheumatism, cancer and cancerous growths are not exceptional affections."

All the writers whom I have consulted speak of the involvement of the neighboring glands, but deny the visceral recurrence of the affection; and they all agree that it induces a cachexia, and destroys the patient by exhaustion before its local ravages have reached a vital spot.

Erichsen claims that such malignant disease of the jaw early manifests itself in swelling of the submaxillary glands, and that this complication sometimes occurs even before ulceration has taken place.

One writer affirms that ulceration is always a secondary process, but that, owing to the painlessness of the initial tumor or wart in epithelioma, the first stage frequently goes unrecognized.

The appended case illustrates many of the points here described, but differs in the essential features of absence of submaxillary swelling and acute pain, and in the very tardy appearance of cachexia.

My patient is a married woman of 87, from a remarkably long-lived family, one brother having recently died at 90. Her family is free from any constitutional taint, excepting gout, which has manifested itself in the patient under consideration by nodular swellings of the joints, a tendency to eczema, acidity of the stomach, and by the frequent appearance of the abnormal excretion of uric acid. Her children manifest the same tendency, and one of them is the subject of extreme nervousness and periodic attacks of hemicrania. A son, now past the prime of life, has been the subject of chorea from youth, and evinces a predisposition to attacks of eczema of a severe form, occurring in the neighborhood of a scar occasioned by a wound received in the late war.

In the spring of 1894 my attention was called to a cavity in the alveolar margin of the left upper maxilla, about the position occupied by the first molar tooth. This cavity had dark edges; it extended about a half-inch in depth, and had all the appearance of an unclosed tooth-socket. It was tender—hardly painful—and annoyed her principally by its tendency to make her seek to put the point of her tongue into it.

Not suspecting any malignancy, the cavity was disinfected and swabbed with a solution of silver nitrate (five grains to the ounce), and in a month's time it was filled, presenting a smooth, granulating surface, with everted edges. As there was no glandular involvement, and no change in color, the disorder was treated as a simple ulcer. For six months little or no change took place; then the granulating surface began to spread. A dentist was called in consultation, but he could make no diagnosis; he however suggested the local use of liquor sodii carbolatis. Spreading gradually continued, but no pain exhibited itself except upon the contact of hard food or broths containing salt. The patient's general health remained good; if anything, she was better than during the spring.

In the early summer of 1895, the disease had involved the mucous membrane on the outer alveolar margin and on the palatal plate, inward to the median line and forward to the second lateral incisor. Drs. Yorkes and Cryer, two specialists in diseases of the jaw, were then called and confirmed a suspicion of an epitheliomatous nature which I had begun to entertain.

In September of the present year growth was more rapid; the breath became very fetid, irregular nodules appeared, and points like stalactites hung from the alveolar buccal junction. A gangrenous slough, a half-inch in diameter, was thrown off from the center of the sore, which let out a discharge of pus and put an end to the fetid odor.

At the present writing, the ulcer has eaten deeply into the jaw, and appears to communicate with the antrum. By keeping it clear with hydrogen dioxid and potassium permanganate, all odor is suppressed. The patient takes two quarts of milk daily, consumes two eggs, and takes beef-peptonoids, with comparatively little discomfort; she retains all her faculties, shows no cachexia, and no tendency to glandular enlargement of the affected side, although



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within the past week the gland at the angle of the jaw of the opposite side has been slightly swollen. At the present rate of extension there is grave reason to fear serious local involvement before the cachexia and exhaustion, which the authors describe as so essential a feature of the disease, shall have made its appearance.

The particular points of interest in this case are the association of so distinctly a gouty history with the occurrence of the affection; the strange absence of lancinating pain; the slight tendency to glandular enlargement; the delay in the appearance of cachexia; and the great similarity of the physical appearance and progress of the disease to the ulcerative or open form of epithelioma of the jaw, as described by Bond.

## CLINICAL LECTURE.

### *FOUR CASES OF MIXED OR IRREGULAR FORMS OF MULTIPLE NEURITIS IN WHICH PARAPLEGIA WAS THE MOST PROMINENT SYMPTOM IN THREE, AND A CONDITION SIMULATING HEMIPLEGIA IN THE FOURTH.*[1]

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LECTURE I.

I wish to call your attention to-day to a series of interesting and rather peculiar cases. Of the first one we have the following history:

CASE I.—John E., aged 27, born in Sweden, living in the United States since 1893 and in Colorado since 1894, was admitted into this hospital February 20, 1895. The family-history so far as he knows is negative. The patient's health in childhood was poor, but he can give us no definite account of his health during this time, further than that he was said to have lacked nerve-force, and he also remembers to have suffered from time to time from considerable pain in the chest. Some weeks before entering the hospital he had a chill, and was troubled with some shortness of breath and fever. On admission into the medical wards of the hospital he was found to be suffering from acute lobar pneumonia and was placed under the care of Dr. McLauthlin. In the early part of April, while he was slowly convalescing from his lung-trouble, he began to complain of pain in the legs below the knees and of a sore feeling in the legs above the knees, but no pain such as he experienced below the knees. The legs felt cold and he was annoyed by a prickling, numb sensation, and a constant, dull, heavy pain. About the 20th of April, or two weeks after he complained of these nervous symptoms, it was observed that he had double foot-drop, with marked wasting of the muscles of the legs below the knees. Tactile sense is said to have been but little impaired at that time except around the feet. The knee-jerks were noticed to be increased, but there was neither bladder-trouble nor bowel-disturbance. Early in May he was transferred to the nervous wards.

The examination, May 4, 1895, showed extreme double foot-drop and inability to flex or extend either foot. The posterior tibial muscles were slightly contracted, so that the feet could not be forcibly dorsally flexed beyond a point at right angles with the tibia; the muscles that flex and extend the knees were fairly strong, and the hip-muscles were unimpaired; the bladder and bowels were unaffected, and there was no paresis or paralysis of any of the trunk or facial muscles. The dynamometer registered R., 116; L., 116. All the arm-muscles seemed to be in a normal condition. The knee-jerks were decidedly increased, and on depressing each patella a rythmic contraction of the rectus femoris group of muscles took place. Ankle-clonus, plantar and tendo-Achillis reflexes were absent. The increased myotatic irritability was so great in the extensors of the knees that on placing the front of his feet against some resisting substance a continuous clonus-movement took place. The cremasteric and abdominal reflexes were present; all of the reflexes of the arms were normal. Tactile sense was apparently nearly normal except on the soles of the feet and on the dorsal surfaces of the toes, where it was not completely abolished, but was greatly lessened. The temperature-sense seemed to be unimpaired except over a small area over the upper and outer portion of each leg just below the knee. All other general sensory phenomena were normal. There was no involvement of the arms or hands, and no impairment of tactile sense around the anal region or over the external genitalia. The special senses showed no deviation from normal. The eye-grounds presented no pathologic appearance except that the left seemed a little hyperemic and showed evidence of slight old neuroretinitis. The patient has never been addicted to the use of alcohol to excess; neither has he been a moderate, steady drinker. Syphilis was denied. The wasting was extreme in the muscles of the feet and legs below the knees.

A large-sized Flemming battery was used in testing the reaction to the faradic current, and the muscles in a nearly normal condition usually responded slowly to an interrupted secondary current when tapped at button numbered 1.

Tibialis anticus: R., 4+2; L., no response to the strongest current.

Peroneus group: R., 4+3¾; L., 4+5½.

Ext. long. digitorum: R., 4+6½; L., no response to the strongest current.

Posterior tibial group: R., 4+3½; L., 4+1.

Rectus femoris: R., 1; L., 1.

All the other thigh-muscles responded normally to this current.

To the galvanic current:

Tibialis anticus: R., K.Cl.C. = 10; A.Cl.C. = 8. L., K.Cl.C. = 20; A.Cl.C. = 15.

Peroneus group: R., K.Cl.C. = 12; A.Cl.C. = 15. L., K.Cl.C. = 15; A.Cl.C. = 20.

Ext. long. digitorum: R., K.Cl.C. = 10; A.Cl.C. = 8. L., K.Cl.C. = 20; A.Cl.C. = 15.

After the patient was transferred to the nervous wards he was kept in bed until a few weeks ago, when he was allowed to be up a portion of the day. The treatment consisted in covering the affected part with flannels, in placing sand-bags at the soles of the feet to prevent con-

[1] Two clinical lectures delivered at the Arapahoe County Hospital, September 14 and 21, 1895.

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tractures of the flexor muscles of the ankles and feet; and strychnin, iron, and quinin were given internally. The affected parts have been masséed daily, and a continuous and interrupted galvanic current has been applied to the paralyzed muscles. I shall examine him today before you.

You notice that the right leg below the knee is much larger than the left and presents an edematous appearance. The right ankle-joint seems to be distended with fluid. The left leg below the knee presents a wasted appearance, with some edema in and around the ankle. The reaction of degeneration is said to exist when the muscles lose their normal irritability to the faradic current and respond to the positive pole of the galvanic current as readily, or even more readily, than they do to the negative. The man is now able to slowly flex and extend the feet, but the tibialis anticus, extensor longus digitorum, extensor longus pollicis, and peroneus muscles are extremely weak. The knee-jerk on the right is greatly exaggerated and increased by reinforcement; the left is even more exaggerated than the right and is also increased by reinforcement. No clonus is obtained by depressing the patella. Ankle-clonus and the plantar reflexes are absent; tendo-Achillis jerk is slightly increased. Usually in health very little response is elicited by tapping the stretched tendo-Achillis, but you notice that a sharp response is elicited by striking these tendons in this patient. All the superficial and deep reflexes above the knees are normal and there is no impairment of muscular power except in the parts below the knees. The posterior tibial group of muscles is fairly strong and the anterior tibial group brings the feet at right angles to the tibia, but with little force interposed the power is easily overcome. The left tibialis anticus is stronger than the right. Tactile sense on the right foot is normal except on the sole and on the end of the toes. On the left foot the area of tactile anesthesia is less than on the right, and involves the inner side of the sole of the foot, but on the outer side of the plantar surface the man is able to feel the touch of a camel-hair pencil in motion. There is a little anesthesia around the left ankle. The temperature-sense is not lost, but it is lessened. The feet and legs feel cool. All the affected muscles respond more readily to the faradic current than they did early in May of this year. To the galvanic current the muscles show a better response than at the former examination, but these still exhibit a change both in quality and quantity, so that we have a condition known as the reaction of degeneration in the muscles most affected.

Before considering the next case I wish to call your attention to certain conditions in this. You observe we have, first, motor paralysis; secondly, sensory disturbance; third, trophic changes; and, finally, changes in electric reaction. You also notice that the trouble is bilateral and limited to the legs, assuming a form of paralysis known as paraplegia. When paralysis affects an arm or leg upon one side it is known as hemiplegia; when either one leg or one arm on one side of the body it is known as monoplegia; when the arms and legs are affected on both sides of the body it is known as diplegia. You observe another condition in this patient: his paralysis is limited to the distal portions of the extremities, and, further, a multiplicity of nerves are involved. The sensory disturbance, like the motor, is only found at the distal portions of the extremities.

We shall consider the nature of this case after we have reviewed others.

CASE II.—William R., aged 28, single, a rancher by occupation, born in Ohio, living in Colorado 2 years, was admitted into the hospital July 31, 1895. The family-history is unimportant. The patient enjoyed good health until 2 years ago when pulmonary tuberculosis began to develop, and for this he sought the climate of Colorado. He was feeling well until about the middle of July, of the present year, when he contracted typhoid fever, for which he entered the hospital. About the 9th of August delirium developed and continued for 2 weeks. He had a slight hemorrhage from the bowels 2 days later. His temperature ranged rather high, from 102.5° to 105° F., until August 24th, when he had a severe chill, and the temperature descended to 95°. By the application of heat and the administration of stimulants the temperature soon rose to normal. There was no delirium after August 25th. The pulse-rate has been high, varying from 100 to 150 throughout the disease. About the middle of August the man began to complain of pain in the legs, which it was noticed were exceedingly sensitive. I was asked by Dr. Bothwell, who had charge of the patient, to see him September 3d.

Upon examination I found extreme wasting of the leg-muscles, more marked below than above the knees. The dorsal flexors of the feet were almost completely paralyzed; the plantar flexors were much stronger. Each tibialis anticus muscle was capable of slightly moving the foot, but the left peroneous group was completely paralyzed, and the right nearly so. All other muscles of the legs were fairly strong for one in the man's emaciated condition. As to the reflexes, the right knee-jerk was very slight; the left absent. The plantar reflexes were exaggerated, the tendo-Achillis absent, the cremasteric and abdominal reflexes present. The deep reflexes of the arms were exaggerated. Tactile sense was almost completely lost over the feet, greatly lessened around the ankles, and decidedly impaired up to a point midway between the ankles and the knees. Over the area of tactile anesthesia the man was unable to appreciate considerable differences in temperature. Sensory phenomena around the anal region and over the external genitalia were normal. Objectively all forms of sensation were normal in the hands and arms, but the patient complained of a numb sensation in the right hand and in the little finger of the left hand. There was foot-drop, but no wrist-drop. The toes were exceedingly sensitive to pressure, and the contact of the clothing was annoying. No attempt at examination of the muscles by electricity was made because of the weakened and irritable condition of the patient.

This patient also presented a form of partial paraplegia, motor and sensory disturbance being limited to the distal portions of the extremities, with involvement of a multiplicity of nerves. There were motor, sensory, reflex, trophic, and, undoubtedly, electric changes.

CASE III.—John T., a man 87 years old, born in Pennsylvania, but living in Colorado one year, was admitted into the hospital March 20, 1895. His family history, as far as I am able to learn, is negative. The patient in childhood and youth was healthy, except for an attack of rheumatism at his 15th year. He suffered from typhoid fever 50 years ago, but made a perfect

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recovery. His health continued good until 4 years ago, when he injured his right hip by falling from a wagon. He says that he did not consider himself seriously injured at the time, but his hip has troubled him ever since, especially if he stands long on his feet, or gets very tired. During the summer of 1894 an eruption broke out on his face, the parts burned and itched all summer, and in September the symptoms were quite severe. In February, 1895, the eruption began to disappear, but the soles of the feet became so sore that the man could scarcely walk. He had, at this time, a prickling and tingling sensation in both feet and legs up to the knees, which in the right extended to the middle of the thigh. Sometimes his feet seemed to burn; at others they seemed to him to be as cold as ice. These sensations increased to such an extent that he was compelled to take to his bed early in March. On his admission to the hospital, 20 days after having been confined to his bed, he complained of pain in the legs from the hips downward, more marked on the posterior portion of the thighs than on the anterior. He experienced pain in the parts, especially when the legs were extended, and said it was worse in the right than in the left leg. Careful examination at that time, both by the rectum and over the nerves by palpation, revealed no spots of decided tenderness. His chief complaint was of a dull heavy pain in the feet, legs, and hips, and a tingling sensation below the knees. A most careful examination by means of a camel's-hair pencil discovered no loss of sensation, and motion appeared good. Subsequent to this the tingling sensation became a dull heavy feeling in the legs, and it was so distressing that he was compelled to lie in bed and have the affected parts wrapped in warm flannels. It was not until some time in July or August that any loss of sensation was discovered in the feet and legs. Atheroma of all the exposed arteries in the body has been most marked from the time of his admission into the hospital.

A re-examination, September 8, 1895, showed no perceptible loss of power in the feet or legs. The main complaint at present is that his legs below the knees feel numb like sticks, that he has a sensation as though he could not move them, but on attempting to do so he finds that he has the power. Pain radiates from the right hip down to the heel. The knee-jerks are absent, the plantar reflexes are decided, but the tendo-Achillis jerk is absent. The cremasteric and abdominal reflexes are present. Tactile sense is lost from a point midway between the knee and the ankle downward. All other forms of general sensation seem to be about normal. The muscles below the knees are slightly wasted. The right thigh is a little smaller than the left by actual measurement, in several places by about a quarter of an inch. The glands in the right groin are sensitive and more prominent than those in the left. There is no tenderness of the spine, but there is apparent partial ankylosis of the right hip-joint, with some enlargement of the entire joint. It is impossible to determine the exact condition of this joint without etherization, as the adductor muscles of the thigh are so tense.

You notice that this case, while differing in some respects from Cases I and II, has certain characteristic symptoms similar to those found in the first two cases. With the exception of the hip-joint trouble, which is the result of an injury received several years ago, and which is apparently not related to the nerve-affection, the trouble is bilater, symmetric, and limited to the distal portions of the extremities. The sensory phenomena in this case are well pronounced, and the motor are slight.

CASE IV.—I would like to describe another most interesting case. I saw the patient a few days ago in consultation with the surgeon of the Denver and Rio Grande Railroad. The patient was a man about 35 years old, who had lived in Colorado for a number of years, and was employed in the D. & R. G. shops, principally in writing. He had always enjoyed excellent health until a few years ago, when he began to drink alcohol to excess. At first he took from two to three drinks daily. In the morning before breakfast he had his cocktail, and if he felt weak during the day he drank beer, and at night he took two or three "stiff drinks" of whisky to insure sleep. As time went on he found he had to increase his stimulants, as he thought, to keep himself up to his work. This habit of daily drinking continued for about 2 years. Two or three months ago, he found it quite difficult to use his right hand in writing, but did not notice anything wrong with the left. He did observe, however, that he did not walk as firmly as formerly, that he experienced a little difficulty in walking in the dark, and that occasionally numb and tingling sensations were felt in the hands and feet. A few weeks ago, on trying to alight from a car while it was in motion, he was thrown to the ground, falling on his right side, and bruising his right arm and leg. At the time the injury seemed to be slight, but soon after he observed that the right arm and leg were quite weak, and a few days later, on attempting to dress himself one morning, he found he was unable to stand. On examination I found the dorsal flexors of the foot below the knee almost completely paralyzed on the right side, and the flexors were weak. The muscles of the left leg below the knee were weaker than normal, but retained more than twice the strength of those of the right leg. There was partial foot-drop on the right side, but not on the left. The right arm below the elbow was almost completely paralyzed, so that there was partial wrist-drop. On the left side there was no wrist-drop, but the strength in the left arm was considerably impaired below the elbow. Tactile anesthesia was well marked on the bottom and dorsal surfaces of the right foot, and slight on the left foot. On the palmar surface of the left hand and on the dorsal surface of the fingers of this hand there was partial anesthesia. On the right hand tactile anesthesia was well marked, and extended a little above the wrist. The external genitalia and the anal region were uninvolved. Plantar reflexes, tendo-Achillis jerks, and knee-jerks were absent. All the other superficial reflexes were present, but the deep reflexes of the arms were increased. None of the special senses was affected, and the face and tongue were apparently in a normal condition,

This case is also similar in its prominent symptoms to the first three; the paralysis and tactile anesthesia, while most marked on the right side are bilateral, and the trouble is limited to the distal portions of the extremities. We may account for the symptoms being more pronounced on the right side than on the left by the injury which the man received to the right leg and arm some weeks previously, and it is probable that the right hand,

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even before the injury, was affected out of proportion to the left, from the fact that he had to use it in writing, and the delicate movements tired the muscles, and, further, the constant use of this hand directed his attention to it more than to the other. However, to the effect of injury to certain nerves supplying groups of muscles in this class of cases, and the apparent unilateral character of the symptoms, I shall refer later in connection with the nature of these affections.

Now let us see if by the process of diagnosis by exclusion we cannot arrive at the probable nature of the trouble from which these four patients are suffering. Pain in the limbs, especially in the muscles and along the nerves, is often mistaken for rheumatism. Rheumatic pains in persons subject to rheumatism may precede or follow serious illnesses. They may be lighted up by injury and are unpleasantly influenced by the use of alcohol, but rheumatism, in the vast majority of cases, when it attacks the extremities, involves the joints, and it is exceedingly rare for the distal portions of the extremities alone to suffer. Rheumatism is not attended with areas of anesthesia, and when muscular weakness and wasting are present, which may occur from the involvement of the joints, there is no reaction of degeneration in the muscles, such as these cases present. The reflexes are not affected in rheumatism, except that at times the deep reflexes are increased. I have seen one case of rheumatism of the legs in which there was complete paralysis of the flexors and extensors of the ankles, but these symptoms were temporary in character, and proved to be due to the inhibitory character of the pain in the legs. Wasting of the muscles, if it occur in rheumatism, is a late symptom, and is always associated with affection of the joints. None of these cases would be mistaken for rheumatism after a careful study of them. Pressure-neuritis may give rise to symptoms somewhat similar to those presented by the cases which we have studied, but in this condition the paralysis is rarely bilateral unless it occurs from pressure in the pelvis or from disease of the vertebræ. When the distal portions of the extremities only are affected and the trouble is bilateral, it will, in the vast majority of instances, be due to other conditions than pressure on the nerves. If pressure should be the cause, the source of the irritation of the nerves in the legs is very easily detected. When the pressure occurs in the pelvis, the symptoms extend up to the seat of the pressure, and if the arms are involved the trunk-muscles will also be affected. There seems then to be no difficulty in excluding pressure-neuritis as the cause of the trouble in these cases. Spinal pachymeningitis may give rise to pain in the legs, shooting or dull, and sometimes the pain is limited to the course of the nerves, but here also the symptoms extend up as high as the seat of the pressure, so that the trouble is never limited to the distal portions of the extremities. In acute ascending paralysis in which the affection begins in the feet and gradually travels up the legs and involves the muscles of the trunk and arms, there is little danger of mistaking it for an affection in which the trouble is limited entirely to the distal portions of the extremities, besides in acute ascending paralysis the disease runs a rapid course, there is but little anesthesia, if any, and atrophic changes have not time to become manifest in the muscles. Locomotor ataxia, on account of the pain and the ataxic symptoms, may simulate conditions of the kind presented by the cases we are studying, but there is no paralysis until late in the disease; the bladder-symptoms and eye-symptoms are usually pronounced, and there is no marked muscular wasting and true reaction of degeneration. Myelitis may give rise to paralysis that is most pronounced in the distal portions of the extremities, attended with foot-drop and areas of anesthesia around the feet and ankles; but in myelitis, if the symptoms are largely limited to the feet and ankles, the lower portion of the cord is affected, and there will be areas of anesthesia over the external genitalia and around the anal region; besides bladder-symptoms and bowel-trouble would invariably be present. In diphtheric paralysis there is usually a history, though frequently imperfect, of sore throat, but the paralysis always first manifests itself in the palate and muscles of the iris, so that there will be a difficulty in swallowing liquids and a tendency to constant dilation of the pupils. Hysteria is not to be disregarded in any class of cases of nervous disorder, but in this affection, except in cases of many years' duration, there is no marked wasting of the muscles and no electric changes. Further, no anesthetic areas limited to the distal portion of the extremities would be present. In this brief review it seems to me that we are able to exclude everything that would likely give rise to the symptoms that these cases present, except multiple neuritis, but, as my hour has expired, we shall take up and study the nature of multiple neuritis and the individual symptoms presented by these cases at our next clinic, one week from to-day.

(To be continued.)

## CLINICAL MEMORANDA.

### NOTES OF A GASTROSTOMY.

BY H. G. WETHERILL, M.D.,
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CONSULTING SURGEON TO MERCER HOSPITAL; GYNECOLOGIST TO ST. FRANCIS' HOSPITAL.

THE patient whose case I report was a stationer by occupation, and claimed to have been in good health up to about one year ago, when he observed that it was very difficult, and soon became impossible, for him to swallow food. He had subsisted on liquids, which he swallowed with difficulty till one week before operation; and during that week he was sure nothing went into his stomach. Milk and other liquids swallowed in small quantities were promptly returned, mixed with pus and frothy mucus. His bowels had not been moved in weeks, and his urine was scanty and high-colored. Numerous attempts had been made at various times, and by a number of surgeons, to pass a bougie into and through the constriction, and it was thought this had been done; but it seems likely, in the light of subsequent events, that it could hardly have been accomplished.

Two strictures were supposed to exist—one about nine inches from the incisor teeth, and one at the point of emergence of the esophagus from the diaphragm or just at the point of junction with the stomach.

When I first saw the man (March 14th) his emaciation and weakness were extreme. He was reduced from 135 pounds in weight to about 85 pounds; his tongue was dry and brown, his breath foul. He coughed a

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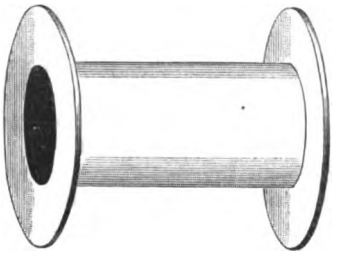
great deal, and complained much of pain in the right side of the chest.

I passed a feeding-tube (No. 16 American catheter-scale), which met an obstruction nine inches from the

FIG. 1.



incisor teeth; this stricture was easily passed, and without the use of force. The tube was again arrested at fifteen inches, but did not convey the impression of being in the stomach, and a small quantity of milk passed into it soon filled the tube and the space about it, and ceased to flow. On withdrawing the tube the milk was regurgitated. A second attempt was made with a like result, and it was concluded that there was a permeable stricture at nine inches and an impassable one near the stomach.

The family-history of this patient was good, no member of his father's family or that of his mother's having had carcinoma or any strumous disease. He had never had any manifestations of syphilis, though exposed to the disease in early life, and he had a number of strong vigorous, and apparently healthy children. No tumor could be made out, and the cause of the obstruction could only be surmised. For the relief of the urgent need of nutrition, and to prevent starvation, an immediate gastrostomy was advised and accepted. The patient was removed to St. Francis' Hospital and was operated upon the following day, March 15th, after due preparation, rectal feeding being resorted to in the meantime.

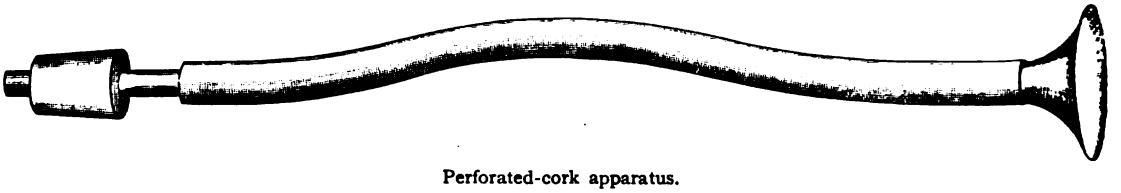
The thin abdominal wall was quickly traversed by an incision three inches long, the left border of the liver presenting at the upper end of the wound. The small and collapsed stomach was found lying against the vertebræ; it was caught, drawn up into the wound, and when a portion had been selected which was comparatively free from bloodvessels, was stitched by a double row of sutures to the parietal peritoneum and muscles. A dressing was quickly applied and the patient put to bed.

His recovery from the ether was prompt, and his condition under the circumstances very good. Rectal feeding was maintained, and on the second day after the operation the stomach was opened, and a glass tube (one-and-one-half inches long) with a flange on each end was carefully introduced.

The dressings were split, carefully placed about the tube, and covered with a piece of rubber to keep them dry. The stomach was then washed out with a little warm water, and a small quantity of milk was introduced and retained by a cork in the external end of the tube.

It soon became evident that the long, unused, and collapsed stomach would not dilate to receive a sufficient quantity of food unless some slight force was used to expand it; so a cork was perforated and a glass tube passed through it, to which was attached a rubber tube with a small funnel at the other end. The first cork was now removed from the tube in the stomach, the perforated cork introduced, and the apparatus brought into use. The force of gravity secured by raising the funnel eighteen or twenty inches was sufficient for the easy introduction of half a pint of hot milk-punch at a time. By quickly changing the corks again, the food introduced was retained, the pressure from within acting against the inside flange and preventing any leakage by the sides of the tube.

FIG. 2.

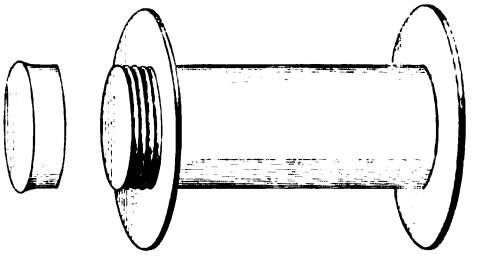


Perforated-cork apparatus.

There was nothing for use in such a case to be found in the instrument-makers' catalogues or in the instrument-stores to which I had access; so I had a tube made of hard rubber with a screw-cap, for permanent wear, as it seemed safer than a glass one, *i. e.*, not so liable to be broken.

This was introduced, but it was not so satisfactory as was hoped, because the screw-cap could not be easily and

FIG. 3.



quickly put on, and there was much loss of stomach-contents and soiling of dressings. The screw-cap when in place was flatter and less in the way than the cork.

The patient gained in strength and spirits at once after substantial food was taken. His bowels began to move regularly, and his urine was much increased in quantity.

It became evident that there was a spasmodic element

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about the constriction of the esophagus that had been relieved by rest, as the man could now swallow small portions of beer or water; yet milk given through the tube regurgitated by the mouth at times. Strong hopes were entertained that the stricture could be passed from below and distended by the Cutter rosary bougie and the string-saw when he had gained sufficient strength to warrant the attempt.

These hopes were delusive, as his improvement was temporary. In two weeks his failing strength and energy were nearly exhausted, and on April 4th (twenty-one days after the operation) he died, notwithstanding the fact that he had taken fair quantities of food which had seemed to be easily digested and assimilated. The reason for this became apparent at the autopsy.

The body was found to be very much emaciated. The stomach was firmly adherent to the abdominal wall, there having been no peritonitis. The liver was enlarged and displaced downward and to the right. The gall-bladder was distended, and its fundus was within an inch of the symphysis pubis. The right border of the liver reached well below the crest of the ilium. The other abdominal organs seemed normal.

On opening the chest a great deal of inflammatory thickening was found about the lower end of the esophagus. The right lung was adherent, and the right pleural cavity contained about a pint of thick, bloody, and offensive pus. The lower lobe of the right lung was infiltrated with pus, and was the seat of croupous inflammation. It was hepatized and thoroughly consolidated. The apex of each lung contained cicatrices of old tuberculous lesions. On the right side there had been considerable destruction of tissue (cavity). A stricture of the esophphagus was found one inch below the bifurcation of the trachea, with an ulcerated opening or false passage leading into the right pleural cavity.

About this were sinuses containing pus. The stricture involved only about one-and-one-quarter inches of the esophagus, and was the result of an ulcer, probably of specific origin. It was very evident that the condition of things in the right lung and pleura was due to the communication with the esophagus. The cause of death was pneumonia, sepsis, and asthenia.

The study of this case in the retrospect develops many interesting points, and reinforces the good old teaching as to the exercise of great care in the use of the esophageal bougie; for there can be little doubt that the false passage into the pleural cavity was made by the passage of a bougie. Subsequent inquiry of the family fixed the time when this accident very probably had taken place. In August, 1894, a bougie of large size was passed with difficulty. The operation was painful at the time, and was followed by a free flow of blood, by pain in the right side, with chills, fever, and confinement to bed; cough and expectoration supervened and remained till death.

Esophageal bougies have been thrust into abscesses, anuerysms, the pericardial and pleural cavities, as well as into the mediastinal spaces; so that the utmost gentleness must be exercised in their use.

That this condition in the chest was not diagnosticated before death was due to the fact that I had seen the patient only the day before the operation, and then the imminent starvation was the matter of greatest importance, demanding immediate attention, and his condition was such that no thorough physical examination could be made.

The dreadful condition of the lower lobe of the right lung and the pleural cavity, the former being riddled with pus-pockets and the latter full of pus and of portions of food which had been swallowed or introduced by the tube, made it a marvel that the man had survived so long a time. Beside this, little food could have gone into his stomach, as the stricture was so tight as to be almost impenetrable.

The question whether milk and other food which had been introduced into the pleural cavity might have been partially absorbed, and so prolonged life, was considered; but it seems hardly probable that any considerable quantity could be thus taken up by tissues so inflamed and disorganized.

Could this gastrostomy have been done before the esophagus was perforated, there can be but little doubt that the patient's life could have been saved, the stricture being passed from below and subsequently dilated, after which the closure of the new mouth into the stomach would have been an easy and natural sequel.

## *TACHYCARDIA ASSOCIATED WITH FUNCTIONAL AND ORGANIC MURMURS AND DISTURBED NERVOUS MECHANISM.*

BY THOMAS LUTHER COLEY, A.B., M.D.,
OF PHILADELPHIA.

WILLIAM MCC., aged 19, white, a clerk by occupation, first came under observation on July 16th. Two days before (on the 14th, which was a very warm day), he had been playing baseball and was seized with a violent attack of palpitation, accompanied by great dyspnea. Both of his parents are well; one grandparent is alive at 85; the others all died after 70. The patient has one brother who is a hale, hearty boy of 16. One brother died of diphtheria at 2 years, another of hydrocephalus at 3 months. William has always been a weak, sickly child whom his parents had despaired of raising. He has had measles, chicken-pox, whooping-cough, and pneumonia of a severe type some 8 winters ago. He is of an extremely nervous temperament. For 5 years he has had attacks of palpitation of varying severity brought about by the slightest nervous shock, even at times by straining at stool. None of these attacks has been of long duration, and most usually but momentary. One, however, was very severe in December, 1892. At that time the attack lasted uninterruptedly for 4 weeks, but was lighter than the present one. The pulse when first counted was 195. A few moments afterward it had fallen to 165. He said that the slightest noise in the street or in the house, the slightest commotion, the visits of expected friends, even the opening of his door, all tended to aggravate the symptoms.

The patient was very thin and extremely emaciated. The mucous membranes were pale, the conjunctivæ pearly, and the skin ashen. A blood-count made at this time showed 55 per cent. of hemoglobin and two-and-one-half million red corpuscles. The chest was very much malformed and markedly rachitic, the costal

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angles being considerably increased. The left side was much more prominent than the right; the apex-beat was greatly displaced downward and to the left. It was very diffuse and centered at the seventh rib in the mid-clavicular line. There was much epigastric and precordial pulsation and visible pulsation in the jugulars. The chest, while emaciated and somewhat flattened on the right side, was of good depth, antero-posteriorly, and the movements of respiration were well marked. There was no edema under the eyes or in the hands and feet, nor had any existed to the patient's knowledge. The tumultous pulsation was transmitted strongly to the palpating hand and moved it forcibly. The lungs were normal, with slightly increased expiration. On auscultation the rhythm of the heart was found to be greatly disturbed; but so great was the rapidity of its action that no functional or organic murmurs could at this time be detected. An ascribed cause of this condition, that of abortive systole, conveys the idea of the sound of this terrific overaction.

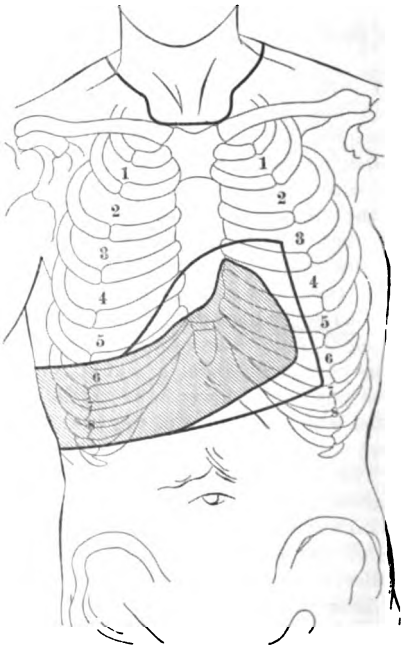
The patient was placed at absolute rest in a darkened room and upon milk-diet and stimulants. Calomel was prescribed in divided doses to keep the stools soluble. The bromids were ordered in 20-gr. doses t.d., and increased to 30 gr. An ice-bag was also applied to the chest. Strychnin was given in doses of $\frac{1}{30}$ gr. every 4 hours. Digitalis was also tried in 15-drop doses of the tincture; but the result of this treatment was unsatisfactory. The bromids were discontinued at the first signs of disturbing the stomach. Fowler's solution was next prescribed in ascending doses and morphin given, $\frac{1}{8}$ gr., every 3 hours. The morphin, which was also tried in $\frac{1}{4}$-gr. doses hypodermically, gave the patient considerable comfort, but the pulse did not fall below 165. The boy continued to grow weaker, his appetite failed entirely, and symptoms of jaundice appeared, which was unfavorably regarded as due to passive portal congestion, but this was happily relieved by calomel. For 6 weeks the patient continued in this condition, with the heart pulsating from 195 to 165 per minute, but not going lower.

Finally tincture of cannabis indica in 5-minim doses, with tincture of aconite in 2-minim doses, was tried with success. After a very few doses had been taken great improvement was noted, and soon the pulse fell to 60. Earlier in the case a slight degree of pyrexia (100°) had been observed, and a simple mixture with drop-doses of tincture of aconite had relieved it, but this did not affect the heart's action; the action of the cannabis indica, combined with aconite, proved, however, very satisfactory.

Auscultation performed after this remarkable drop in the heart's rapidity led to the astonishing fact that, while no murmurs could be detected at any time during the attack, now they were plainly audible. This is another case of the sort reported by Brunton,[1] in which a basic murmur, well heard when the heart was beating quietly, disappeared when its action became very much greater.

There was present in the case under consideration a very pronounced mitral systolic murmur, well transmitted to the inferior angle of the scapula. The aortic second sound was markedly accentuated. There was a soft, blowing, systolic, pulmonary murmur, with a snapping, ringing second sound. Both sounds at the ensiform were valvular and forcible. The heart was very irregular in its action; both sounds were plainly heard in the carotids. In the veins at the root of the neck, most distinct upon the right side, hemic murmurs were heard, accompanied by a continuous thrill and a venous hum.

The percussion-outlines, as shown in the accompanying illustration, indicate great hypertrophy and dilatation of both ventricles, the marked deformity of the left side referred to supporting the evidence of percussion.



Showing superficial and deep cardiac and hepatic percussion-dulness.

The causes that tend to produce palpitation may be enumerated as follows: (1) Anemia; (2) pyrexia; (3) exophthalmic goiter; (4) organic heart-disease; (5) pure neuroses; (6) reflex influences, such as gastric disturbances, tapeworm, etc.; (7) shock; (8) rheumatoid arthritis; (9) the use of tea, coffee, tobacco, etc.; (10) central nervous disease, causing pressure on the pneumogastrics, such as basal tumors, etc.; (11) nephritis, especially late in the cirrhotic form (Brunton). Of these there were eliminated in this case the pyrexia, of which but a very slight degree was present, and that not continuously, the shock, rheumatoid arthritis, reflex influences, pressure upon the pneumogastrics, the effects of tobacco, tea, and coffee, none of which had been used. The patient's youth and careful examination of the urine, which proved normal, leaves nephritis out of the question. The thyroid was not enlarged, no exophthalmos was present, nor von Graefe's or Stelwag's signs.

We have left then to discuss anemia, pure neuroses, and organic heart-disease. Of these the anemia accounts so readily for the symptoms and for the cardiac neurosis that it seems best to regard it as the cause of

[1] Lancet, November 27, 1875.

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the conditions associated undoubtedly with the neurotic tendency.

The blood in anemic conditions is usually regarded as deficient, both in quantity and quality, and the hemoglobin of the red blood-corpuscles is decreased; also the albuminoid constituents of the blood-plasma.

"This impoverishment," says Fowler (*On the Origin of Anemic Murmurs*) "is felt in every tissue and organ of the body, and the sum-total of the phenomena thus evoked constitutes the anemic condition."

It is hardly possible to believe that the weakened, dilated heart of anemic conditions is not also accompanied by the grave structural change of fatty degeneration of the heart's muscle. The degree of hypertrophy found associated with the dilatation of anemia and due to overaction must necessarily be limited, for the weakened heart-structure cannot produce very great hypertrophy.

The destructive changes in the nervous mechanism of the heart follow upon these other changes, notably in the quantity and quality of the blood, and there are produced the nervous effects of tachycardia and such associated symptoms of the purely neurotic type of palpitation.

It is not always a simple matter to differentiate between a functional and an organic cardiac murmur. No excessive dilatation of the organ could long exist without producing valvular deficiencies. In this case the soft, systolic, pulmonary murmur seems to be typical of the condition of grave anemia. The accentuated aortic second sound indicates the dilatation and hypertrophy of the left ventricle.

The systolic mitral murmur is clearly heard at the inferior angle of the scapula, in which position a purely functional murmur is not (?) heard. The right heart, while evidently greatly dilated, fortunately does not reveal the evidences of tricuspid regurgitation.

To summarize, the patient suffers from palpitation of the heart from functional, organic, and nervous causes. The anemia, however, seems clearly responsible for the severity of the condition.

The patient continues to take strychnin and Fowler's solution, and has greatly improved. He has been able to resume work, and his appetite and digestion are good. The disturbed cardiac mechanism still causes him the occasional return of spells of palpitation, but these have not been of a severe character.

The prognosis in such a case cannot be very favorable, but it is gratifying to note the increase of red blood-corpuscles to 3,100,000 and of hemoglobin to 60 per cent. at the last blood-count (October 4th), and that the patient has gained 9 pounds in weight.

## MEDICAL PROGRESS.

***Congenital Absence of the Rectum.***—WOODHOUSE (*Lancet*, No. 3760, p. 733) relates the case of a thin, weakly woman, thirty years old, with a tuberculous family history, who came under observation three days after the birth of her first child—a male. The infant had been constantly sick since six hours after birth, when the mother first nursed him, and although abundant urine had been passed, the bowels had not acted. The child was thin and puny, cried repeatedly, and was evidently in great pain. The abdomen was much distended and tympanitic. The anus was absent, nor was there any evidence of its presence in the normal situation, beyond a slight depression close to the median raphé. There was no impulse or bulging in the perineum when the child cried. It was decided to at once make an attempt to relieve the child and establish patency of the rectum, which it was thought would probably be within a short distance of the surface. The little patient was anesthetized with chloroform and an incision an inch long made in the middle line in the normal situation of the anus, cutting upward and backward, and keeping close to the sacrum. From time to time the little finger was introduced into the wound, but nothing indicative of gut could be felt, even at the depth of 1¼ inches. Inguinal colotomy was abandoned on account of the exhausted condition of the patient, and the wound was dressed with boric powder and salicylated wool. Death took place five hours after the operation. On post-mortem examination the intestines were found greatly distended, but otherwise normal, until a point was reached close to the brim of the pelvis in the left iliac fossa, where the sigmoid flexure abruptly terminated in a cul-de-sac. The peritoneum was intact and showed no signs of inflammation. All the other pelvic organs were normal. The pelvis itself was smaller than usual and the tuberosities of the ischia much closer together.

***A Diagnostic Sign of Aneurysm of the Heart.***—EMBLEY (*Australian Medical Journal*, vol. xvii, No. 8, p. 361) has reported the case of a well-nourished man, sixty years old, a watchmaker, of sedentary though temperate habits, who presented loss of power in the right upper extremity. The apex-beat of the heart was in the nipple-line, while the area of cardiac percussion-dulness extended considerably to the left. The heart-sounds were with difficulty audible in consequence of their low pitch and of the thickness of the chest-walls, but especially because of the presence of a musical sound quite distinct from the normal sounds. This sound was high-pitched, humming, continuous throughout the entire cardiac cycle, rising in systole and falling in diastole, audible from apex to base, but loudest at the apex. There was complaint of pain and numbness in the left arm, with pain and hyperesthesia in the cardiac region. Later there was dyspnea on exertion, pain and numbness in both arms, flatulence, anorexia, sleeplessness, and more marked precordial pain and hyperesthesia. The abnormal humming persisted. Death took place suddenly. Upon post-mortem examination the pericardium was found distended with thirteen ounces of blood-clot, and in the posterior wall of the left ventricle was a small, ragged opening from an aneurysmal dilatation. The heart was covered by a thick deposit of fat; its muscular substance was soft and affected by fatty degeneration; the left ventricle was hypertrophied. The valves appeared competent. The vessels were atheromatous.

***The Bacteriologic Diagnosis of Diphtheria.***—When ordinary facilities for bacteriologic investigation are not available in the diagnosis of diphtheria, WRIGHT and SEMPLE (*British Medical Journal*, No. 1815, p. 907) recommend for the preparation of a satisfactory culture-medium the use of a small quantity—say half a tea-

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spoonful—of antitoxic serum, or, if this be not at hand, white of egg, which is introduced into a small, wide-mouthed bottle. The latter is placed in a horizontal position and its contents coagulated over steam. Any water of condensation is poured off, and the culture-medium is permitted to cool. The inoculation is made by passing lightly over the surface of the medium a stout wire or glass rod which has been brought in contact with the diphtheric throat. The stopper is to be replaced and the bottle is to be kept as nearly as possible at blood-temperature. If this is not attainable the temperature of an inside pocket will generally suffice. The microscopic examination may be undertaken after twenty-four hours have elapsed. The material for examination is obtained by lightly scraping the surface of the culture-medium with a platinum wire.

***Successful Removal of a Brain-tumor.***—In the Section for Surgery of the recent Congress of German Naturalists and Physicians, ROTH (*Deutsche medicin. Wochenschr.*, 1895, No. 40, Suppl. No. 25, p. 168) reported the case of a man, 60 years old, who had presented a typical clinical picture of focal epilepsy. On trephining the skull a soft tumor was found in the cortex, invading the fissures and in places adherent to the pia mater. The growth was removed principally by blunt dissection. Careful examination proved the formation to be a parithelioma arising from the parithelium of the vessels. Immediately after the operation the arm of the affected right side was totally paralyzed; the right leg and the lower portion of the right side of the face were markedly paretic; paraphasia was considerable. In a short time, however, progressive improvement set in. The paresis of the face and leg disappeared, then gradually the paraphasia. Bodily and mental strength increased. The attacks of headache formerly present were not repeated, and the convulsions remained in abeyance. The paresis of the right arm disappeared very slowly.

***Poisoning by Stale Eggs.***—CAMERON (*Dublin Medical Journal*, October, 1895, p. 311) has reported the occurrence of vomiting and purging in 74 nuns and girl-pupils in the boarding-school attached to a convent in Limerick, following a dinner at which mutton and a custard composed of eggs, milk, corn-flour, and sugar were eaten. The corn-flour was suspected to contain arsenic, but analysis showed it to be free from poison of any kind, and to be of good quality. The sugar also proved to be pure. No other constituents of the meal could be obtained. The vomit and the stools were intensely green from the presence of biliary matter, but careful analysis failed to disclose the presence of ordinary poison. The viscera of two patients that had succumbed also were examined, but no poison was found. Ptomaines were found present, but in small quantity. The milk used had been boiled, and the meat was above suspicion. The eggs, however, were not fresh, and one presented a reddish-brown color, and was thought to be bad. Some of the custard, given to pigs, induced severe diarrhea. Reference is made to an earlier case of poisoning by stale eggs.

***A Culture-medium for Diphtheria-bacilli.***—TOCHTERMANN (*Centralblatt für innere Medicin*, 1895, No. 40, p. 961) recommends the following formula for the preparation of a culture-medium for diphtheria-bacilli, having several practical advantages over the media in current employ: To a 2 per cent. watery solution of agar-agar are added 1 per cent. of peptone, ½ per cent. of sodium chlorid, and from 0.3 to 0.5 per cent. of glucose, and the whole is filtered, then boiled for from one-quarter to one-half hour with calves' blood-serum in equal parts or three parts of serum to two of agar-agar-solution. The filtrate is received in a flask and sterilized by exposure to the vapor of steam for from an hour to an hour-and-a-half on three successive days. No precautions need be taken to insure sterility of the blood, which is permitted to stand for twenty-four hours and the supernatant serum then poured off. The presence of a small number of red blood-corpuscles in the serum is of no moment, as the filtrate is clear after boiling. The inoculation may be made upon the surface of the hardened medium.

***Polyesthesia and Macroesthesia.***—STCHERBAK and IVANOFF (*Archives de Méd. Experim. et d'Anat. Path.*, 1895, No. 5, p. 657) have reported a case of polyneuritis and hysteria presenting curious sensory manifestations in the distribution of the right median nerve. A body touched or held with the thumb and the adjoining two fingers felt larger than it was actually (macroesthesia), and at the same time it seemed as if several bodies of the same kind were felt (polyesthesia). At different times varying sizes and numbers were appreciated. The phenomena could not be elicited elsewhere than in the region named. Its advent had been preceded by severe pains, paresthesia, and trophic changes, particularly in the distribution of the right median nerve. The paresthesia continued in association with the polyesthesia and macroesthesia, and disappeared with them. There was also impairment of both tactile and muscular sensibility in the affected area.

## THERAPEUTIC NOTES.

***The Diuretic Action of the Salts of Lithium.***—As the result of an experimental investigation, which was confirmed by clinical observation, MENDELSOHN (*Deutsche medicin. Wochenschr.*, 1895, No. 41, p. 673) has found that while all of the salts of lithium possess diuretic properties the most active in this direction is the citrate, which possesses the additional advantages of solubility and comparative freedom from unpleasantness of taste. Next in activity is the acetate. It is further pointed out that chemic solvents of uric acid are not necessarily useful agents in the treatment of gout or the uric-acid diathesis.

***For Hematuria.***—

℞.—Ext. physostigmatis alcohol . gr. ⅛.
Quininæ sulphatis . . . gr. ⅔.
Ergotinæ . . . . . gr. jss.—M.

Ft. pil. no. i.
S.—To be repeated five times a day.

GIOVANNI, *Semaine Médicale.*

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SATURDAY, NOVEMBER 2, 1895.


## THE PATHOLOGY AND THE TREATMENT OF GOUT.

WHILE the clinical picture of gout in its varied manifestations has been clearly made out and its treatment has been placed upon a fairly secure basis, a good deal of doubt and uncertainty surround its intimate pathology, and this the near future promises soon to dispel. In an interesting address delivered recently before the Berlin Society for Internal Medicine, KLEMPERER (*Deutsche medicinische Wochenschrift*, 1895, No. 40, p. 653) reviewed the main phases through which this subject has passed, and presented evidence showing that none of the views hitherto propounded is entirely adequate or satisfactory. In addition he recited the results of some original investigations which, while not solving the problem, bring it closer to a solution and shed new light on an obscure subject.

GARROD maintained that gout is due to increased formation and diminished elimination of uric acid; when an excess has accumulated in the blood it is deposited in the tissues, in which it gives rise to inflammation and necrosis. Recent investigations have, however, thrown doubt upon the accuracy of the results of Garrod's analyses. Nevertheless EBSTEIN admits the probability of an excessive production of uric acid, with accumulation in the blood; the circulating fluid, thus surcharged, causes local inflammation followed by necrosis, and in the necrotic tissues uric acid is deposited. v. NOORDEN has arrived at the conclusion that the gouty condition is independent of the presence of uric acid in the blood; the tissue-necrosis that occurs he ascribes to the activity of a hypothetic ferment, and he believes that the uric acid deposited locally is formed at the necrotic focus.

To determine the relation between the presence of uric acid in the blood and tissue-necrosis, KLEMPERER made a study of a number of individuals, including three persons in health, a case of leukemia, one of pneumonia, two of interstitial nephritis (one compensated and one uremic), and four of gout (three during a paroxysm and one uremic). In all of the cases of gout, as well as in the case of leukemia, and in both cases of nephritis, comparatively large quantities of uric acid were found in the blood. To ascertain whether this result is due to increased production or to diminished elimination the urine was studied in eight cases of gout, placed under like conditions. In two the daily amount of uric acid found in the urine was between 0.4 and 0.5 gram; in five between 0.5 and 1 gram; and in one between 1 and 1.2 grams. No relation existed between the amount of uric acid present in the urine and the character of the disease.

It has been shown that the ingestion of thymus gland of the calf by healthy persons is followed by increased excretion of uric acid, and a similar increase was also found to take place in gouty persons. From all the facts it appears that there is no retention of uric acid in gout as long as the function of the kidneys is not materially interfered with and that the presence of considerable amounts of this substance in the blood cannot be attributed to diminished elimination, but must be ascribed to increased production. The presence of similar amounts of uric acid in the blood of others than gouty patients, however, shows that this factor does not constitute the essential element in the causation of the gouty condition.

KLEMPERER has found further that slight and insignificant differences exist in the solubility of uric acid in the blood-serum of gouty patients as compared with that of other patients and also of healthy persons, the solvent power of the serum in all being considerable—in fact, more than sufficient to dispose of the large amounts of uric acid present. He

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is, therefore, forced to the conclusion that the deposit of uric acid in the necrotic areas of gouty persons is not due to its insolubility in the blood, but is to be explained by the fact that such tissues possess a greater chemic affinity for uric acid than does the blood. Experimental observations showed also that while the blood underwent some diminution of alkalinity during the gouty paroxysm, this was not more than occurs under other conditions, and certainly not sufficient to account for the crystallizing out of uric acid.

In view of all the evidence, the conclusion is reached that in the gouty certain unknown substances lead to inflammatory and necrotic processes in various tissues, and the necrotic tissues possess the property of attracting from the blood uric acid when present in considerable amount. These substances frequently develop from hereditary influences; sedentary pursuits and high living favor their formation; and two poisons in particular—alcohol and lead—predispose to their activity. It has hitherto been supposed that intoxication with lead paves the way for the development of gout by lessening the excretion of uric acid, but it has been shown that lead-poisoning does not have this effect; it may be that the lead present in the blood enhances the necrotic effect of the gouty poison.

The practical deduction from what has gone before is that successful treatment must depend not upon increased solvent power of the blood upon uric acid, but upon the correction and the prevention of the necrotic process by increased oxidation and increased elimination. The attainment of these ends is largely reached through the employment of established measures whose use is sanctioned by the empiricism of centuries. These include increased physical activity, warm or hot baths, free ingestion of milk and of water, preferably alkaline, the avoidance of meat in excess, particularly red meat, and of fats, alcohol, and other carbohydrates. Finally, thymus gland may be administered to increase elimination of uric acid.

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### *KEATS, THE APOTHECARY-POET.*

INTO the Academy of the Immortals, that small and select body, few members of the profession of medicine have ever been admitted. In English literature we have furnished two or three to the charmed circle that surrounds Shakespeare; but, by common consent, one sits close beside the Master, the young apothecary, Keats, the centenary of whose birth all lovers of poetry have celebrated this week. Born in 1795, at the sign of the "Swan & Hoop," Moorgate Pavement, London, son of the head 'ostler, the circumstances of his birth and of his early years were by no means favorable to the cultivation of the Muses. Fortunately, at school, the influence of Charles Cowden Clarke turned the thoughts of the pugnacious lad from boxing to poetry, and before he had reached his fifteenth year Keats was an ardent student of the Elizabethans, and his fate was sealed. In 1810 he was apprenticed to Mr. Hammond, a surgeon at Edmonton. In the lithographed copies of the indentures of that date the number of specific negatives indicate the character of the apprentice to whom cards and dice, taverns and playhouses, fornication and matrimony, are equally interdicted. We know but little of the days of Keats' apprenticeship. A brother-student has left on record that "he was an idle, loafing fellow, always writing poetry." In 1814 pupil and master quarrelled, and, by mutual consent, the contract was broken. It would appear from the following sentence in one of Keats' letters that not words alone passed between them: "I dare say you have altered also—our bodies every seven years are completely fresh materiel'd. Seven years ago it was not this hand that directed itself against Hammond." Keats attended the United Hospitals of St. Thomas' and Guy's for two years, 1814–1816, and in the latter became dresser to Mr. Lucas. On July 25, 1816, he passed the examination for License of the Apothecaries' Hall, then, as now, the lowest qualification in England.

A medical student capable of writing such a sonnet as the celebrated one "*On first looking into Chapman's Homer*" was not likely to settle down as junior partner in some suburban or city practice. While at Guy's, Keats had made the acquaintance of Leigh Hunt and other literary men, some of whom recognized the quality of his mettle. So far as is known he never practised medicine, but for four years lived, as he says, "an odd sort of life, here and there—no anchor." He had many warm friends, and his letters to them and to his brothers show great depth of feeling, and often a critical faculty of singular delicacy in one so young.

In 1817 he issued a small collection of poems, and in 1818 the more ambitious *Endymion*, which was mercilessly hammered by the reviews. An article in the *Quarterly* was for long thought to have

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hastened his death, but the basis for this widespread belief is chiefly the jaunty lines from "Don Juan:"

"'Tis strange the mind, that very fiery particle,
Should let itself be snuffed out by an article."

In 1818, and again in 1819, he buried a brother with pulmonary tuberculosis, of which disease his mother had died. In February, 1820, he had a hemorrhage from the lungs after exposure, and from this date he began a hopeless struggle against rapidly advancing tuberculosis. In 1820 Keats issued *Lamia, Isabella, and Other Poems*, the volume which contains his greatest treasures. In September he sailed for Italy with his friend, Severn, an artist. During the months of January and February he was in Rome, attended by Dr. (afterward Sir James) Clark, and nursed with unremitting care by Severn, whose account of Keats' illness is one of the most touching descriptions in literature.

Racked by a hopeless passion, and consumed by an insatiable disease as the end drew near, when the "shadow of white death" was o'er him, he asked to have inscribed on his tomb the line, *Here lies one whose name was writ in water.* But the world has judged differently, and has taken the verdict of the man whose heart was so soon to rest beside him, and whose *Adonais* is an everlasting tribute to his memory.

## EDITORIAL COMMENTS.

*A "Shake-up" in the New York City Hospitals.*—Ever since the recent request from the Commissioners of Charities and Correction for the resignations of all the members of the staff of the Harlem Hospital, there has been a feeling of uneasiness among those connected with several of the hospitals under the control of the Commissioners. Only last week, one of the former staff of the Harlem Hospital declared before the New York State Medical Association that he understood this process of ousting, or "reorganization," as it is considerately termed, was to be extended to the other hospitals. His prediction was soon verified. A few days ago the Commissioners of Charities abolished the consulting and medical boards of all the hospitals under their control, with the exception of Bellevue Hospital, in which the new system of making appointments has been in operation since 1882. The result of this radical step has been the creation of one-hundred-and-twenty vacancies in the hospitals. Many of these physicians have given faithful and gratuitous service for many years, only to find themselves unceremoniously removed, without any charges having been made against them, and with not even a conventional "thank you" for what they have done. There is small wonder, therefore, that such a sweeping measure should call forth a burst of indignation from the medical profession, and it has already found expression in resolutions adopted by the New York County Medical Association, in which it is declared that this action of the Charities Commissioners is not only unjustifiable, but is, in fact, a slur upon the hospital-physicians who have so freely given of their time and skill.

According to the resolutions adopted by the Commissioners, the College of Physicians and Surgeons, the University Medical College, the Bellevue Hospital College, and the Fourth Division of Bellevue Hospital are requested each to make a certain number of nominations to the visiting staff of each of the other hospitals, and the consulting staff of Bellevue Hospital, created in a similar manner, is to act as a consulting board for these other hospitals. It is openly charged that the Commissioners have been induced by the medical board of Bellevue Hospital to take this action because that hospital found itself short of clinical material. Some of the physicians who feel especially aggrieved at the action of the Commissioners do not hesitate to assert that, in addition to affording these colleges an opportunity to secure more clinical material, this new system gives a little more political power to the President of the Charities Commission.

But the chief objection made, and one which can hardly be gainsaid, is that under the new *régime* the appointments to the visiting staffs of these hospitals will be made solely from the three large medical colleges already mentioned. The Commissioners, on the other hand, defend their action by stating that, as the system had worked well in Bellevue Hospital for a number of years past, they were anxious to improve the other hospitals by adopting the same system in them all. They also say that the measure is intended to remove the appointments entirely from political influence. Undoubtedly, to remove the appointments beyond the reach of politics would mean a great improvement in the service of the hospitals, but, if we mistake not, there is a good deal of politics in certain medical circles, and a "trust" composed of three powerful medical colleges, controlling a large and valuable patronage, is more than likely to be so tainted. It certainly does not seem right or just that these medical men, many of whom have conscientiously served these hospitals, and have given their best years to the work, should be thus peremptorily ordered to stand aside and make room for whomever it may please the colleges to put in their places. The Commissioners say that it will be found, when the appointments are announced, that many of the former incumbents have been retained. So far, so good; but how about those who are dropped without a charge against them, without a hearing, and with no means of redress? If these hospital-positions carry with them a great deal of prestige—and it cannot be denied but that they do—can such arbitrary removal fail to work a gross injustice to those who have not sufficient influence with the colleges to secure their reinstatement?

*School-children and Food.*—The Board of Education of New York City refers to parents the question, Whether one hour's recess for school-children is too short or not? A member of the Board thought that too little time was allowed the children to digest their food, and that, as a consequence, dyspepsia resulted. The teachers, on the other hand, maintain that the extra half-hour recess that it is proposed to give the children would only be spent in play, that the meals would be eaten as hastily as ever,

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and that nothing would be gained; the parents of the children have, therefore, been asked to state their views on the subject in writing to the Board.

A heavy dinner eaten hastily, violent exercise immediately after, and then the school-task, is surely not conducive to sound digestion, but lengthening the recess will hardly bring about the desired result. The higher schools and many private schools accomplish all that is necessary in one session, and why cannot the other divisions do the same? A light luncheon during the forenoon would be sufficient to appease hunger in even the youngest child, and then after a second meal at home at two o'clock the rest of the afternoon could be devoted to play or such other studies as now come in the evening, the heaviest meal occurring at six o'clock. Many persons are at present concerning themselves with the matter of supplying school-children with proper lunches, and the New England Kitchen has done much in this direction in the city of Boston; but why not go a step further and serve a hygienic luncheon to all the children in the school-room at public expense, thus giving them an acceptable object-lesson on the subject of foods, their preparation and value, and teaching them ordinary table-manners. But more than this, what a blessing these meals would be to the thousands of little children who now come to school practically with empty stomachs. This would be charity? Yes, but it would have none of its evils and all of its benefits, as it would be regarded in the same light as free school-books are now, a right shared in by all without distinction of class.

All children are wards of the State, the richest as well as the poorest, the honest as well as the delinquent, and it is the State's business to see that they receive a healthful education as well as a helpful one. It is the duty of the State to do this because it is a matter of self-protection and more needed than the building of warships or the equipment of armies; the one, in fact, often makes the other unnecessary. A proper education, we maintain, is dependent on proper body-nutrition; this question of feeding has more to do with the intellect, and with morals, too, than most philosophies account for, and some day our pedagogues will be as much concerned about the building of brain-structure as they are now in the adornments of intellectual trappings. The feebly nourished brain-cell becomes warped and bent under its burdens and gives way, just as the starved bones do under the weight of the body, The fault is not so much in the weight, but in the weakness of the structures. When all children will have plenty of exercise and plenty of healthful food, then only can we expect to have a race of healthy, well-educated, noble-minded beings. Any objection to free school-luncheons on the ground that the measure is socialistic or paternalistic seems to us unwarranted and puerile.

We believe in compulsory education, but studying is working, and the State does wrong when it compels a child to work on an empty stomach or if insufficiently fed. On the other hand, it derives from the wise education of every individual a benefit that cannot be valued in dollars and cents, and should do all in its power to foster such education.

***Faith-healing and the Pulpit.***—There is no question that the scientific and rational spirit is abroad in the land and is getting "abroader" every day. It has long been a matter of deep regret to our profession and to scientists generally that the one great survival of the credulity of the savage stage of our development, the faith-healing delusion, was almost unanimously endorsed and supported not only by the clergy, but also by the great mass of evangelical opinion. It is true there were many honorable exceptions and that a considerable portion of the more thoughtful orthodox element displayed no enthusiasm over or even approval of these "modern miracles," but even their lips were largely sealed by such texts as "With God all things are possible," "The prayer of faith shall heal the sick," etc., and they hardly dared to deny the, at least possible, divineness of these manifestations. As a result they have become extraordinarily prevalent of late not only among the ignorant peasantry of Europe, where they occasion little surprise, but also all over this enlightened Republic of ours, whose intelligence and freedom from superstition has long been one of our proudest boasts. No small proportion of our "revivalists" have gradually come to claim "the gift of healing," and scarcely a town or neighborhood can be found through the Middle and Western States which has not been visited by one or more "faith-healers" within the last few years.

But like all other evils, this one has brought its remedy with it, and signs of a healthy reaction within the church itself are now plainly to be seen. The protest was started some years ago by the brilliant and eloquent Methodist divine, Rev. J. M. Buckley, of New York, and less prominently by a number of other ministers, and the good sense of the churches has now become aroused to such a degree that a considerable part of both pulpit and pen not only refrain from approving, but even openly denounce, all such displays as unchristian as well as irrational and based upon either ignorance or deceit. An interesting illustration of this change of opinion has just been furnished by an incident reported from a group of towns in Iowa. A certain Mrs. Woodsworth has been holding a "series of meetings" in 5 of these villages, with the result that many miraculous cures are reported from each place. To the great credit of the ministers of the district, most of them, instead of keeping Gamaliel's counsel as hitherto, "lest haply ye be found *even* to fight against God," have come out openly in disapproval not only of these "cures" in particular, but of the faith-cure in general. In Lake City one divine preached against the delusion from the pulpit, was answered by a more credulous brother from his pulpit, and from that they betook themselves to the papers, and the whole community was set by the ears. So bitter did the dispute become that as a last resort both parties agreed to appeal to the decision of that uncrowned pope of modern evangelicism, Dwight L. Moody. Greatly to the surprise of the "faithful" party to the dispute he promptly decided against the evangelist, declaring that he "took no stock in faith-cure or modern miracles."

We cannot but rejoice that we are no longer to combat this delusion single-handed and welcome heartily our new allies. May we not hope that they may be led a step further in the same direction and come to recognize the unwisdom of permitting their names to appear on the testimonial pages of other equally marvellous and even less genuine "cures" wrought by the latest commercial panacea or quack nostrum.

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***A Brave Medical Man.***—That was a brave act by a medical man, Charles Toller, by name, who during a gale off the coast of England risked his life in the effort to save another. As related by the *British Medical Journal*, a man, the sole survivor of the crew of a schooner that had foundered, supported by a life-belt had managed to struggle on to the rocks and lost consciousness. As it was impossible to reach the man from below, Dr. Toller, with a life-line fastened under his arms, descended from a shelving portion of the cliff to the spot where the sailor lay and instituted measures of resuscitation. Efforts to haul the sailor up the cliff, as well as an attempt to reach the spot in an open boat, were unsuccessful, but as the tide changed a boat succeeded in reaching and rescuing the man, who unfortunately died of exhaustion.

***Remarkable Impertinence*** is shown in a circular that is being sent by an advertising firm to physicians, offering prizes of pictures and books for lists of names of patients suffering from a certain class of diseases. The expressed object of the advertiser is to send directly to these patients "literature," the object of which is, we should suppose, readily enough understood. We often marvel in political life to see the egregious stupidity ascribed to the poor dupes of schemers, but we can only wonder more if there is any considerable number of medical gudgeons so poor in understanding as to rise to a bait like this.

## REVIEWS.

SYSTEM OF SURGERY. Edited by FREDERIC S. DENNIS, M.D., Professor of the Principles and Practice of Surgery, Bellevue Hospital Medical College, etc., assisted by JOHN S. BILLINGS, M.D., LL.D. Edin. and Harv., D.C.L. Oxon., Deputy Surgeon-General U. S. A. Vol. ii. Minor, Plastic, and Military Surgery; Diseases of the Bones; Orthopedic Surgery; Aneurism; Surgery of the Arteries, Veins, and Lymphatics; Diseases and Injuries of the Head; Surgery of the Spine; Surgery of the Nerves. Profusely illustrated. 8vo. Pp. 926. Philadelphia: Lea Brothers & Co., 1895.

THE second volume of this important work opens with an abundantly illustrated article on "Minor Surgery" by Dr. H. R. Wharton, of Philadelphia. The subject is very fully treated—with a degree of detail, indeed, in marked contrast to the style maintained in most of the other articles. Some matters are introduced here which we presume will come up again and be far more thoroughly discussed elsewhere. Thus we can hardly suppose that electrotherapy, cystoscopy, and urethroscopy are to be finally dismissed with the mere mention here given them. And we think it would have been better either to omit all reference to the exploring-needle, or to state that its use has been very properly abandoned by most surgeons.

The second article, by Dr. G. R. Fowler, of Brooklyn, deals with "Plastic Surgery." It is very sound and comprehensive.

Next follows an essay by Lieutenant-Colonel Forwood, Deputy Surgeon-General U. S. A., on "Military Surgery and the Care of the Wounded on the Battlefield." For medical officers of the Army this is, of course, not intended; and while it will doubtless be of interest to many civilians, the space allotted to it—twenty-eight pages—is insufficient for it to be of practical value.

The article on "Diseases of the Bones," by Professor Senn, of Chicago, is very good, as is also that by Dr. V. P. Gibney, of New York, on "Orthopedic Surgery."

Professor L. A. Stimson, of New York, contributes a very interesting discussion of aneurysms in general, supplemented by a description of the disease as affecting special vessels by Dr. Percival R. Boulton, of the same city.

"Arteritis and the Surgery of the Veins" form the subject of a brief article by the editor, Professor Dennis.

Professor F. H. Gerrish, of Portland, Me., gives an essay on the "Surgery of the Lymphatic System." We should have been glad if he had made fuller textual explanation of his admirable diagrammatic illustrations of the anatomy of the lymphatic glands, or "nodes," as he prefers to call them.

The next article is by Professor Roswell Park, of Buffalo, on "Diseases and Injuries of the Head." It covers 289 pages, and is by far the most original and important chapter in this volume, embodying the latest developments of the subject. The author has drawn largely upon personal observations, for which he has had abundant opportunity; and, while freely quoting foreign authorities, has extended ample recognition to the labors of his own countrymen.

"The Surgery of the Spine" has been allotted to Professor Keen, of Philadelphia, and is very ably set forth.

The volume concludes with an interesting and well-written essay upon "Surgery of the Nerves," by Professor John B. Roberts, of Philadelphia.

As a whole, this second instalment maintains the standard of the first part of the work. The articles are written by men whose practical experience entitles them to speak *ex cathedrâ*, and they have performed their task with credit to themselves. We are well aware that the changes that have been introduced in the methods of instruction in medicine have modified in a great degree the requirements of students and recent graduates in regard to text-books; and it may be that the present work is more nearly adapted to this purpose than it would have been a decade ago. Physicians of some years' standing, who have kept abreast of the advances in science, will find its perusal interesting and profitable. The mechanical execution of the book is such as to make it very agreeable to the reader.

PRACTICAL DIETETICS, WITH SPECIAL REFERENCE TO DIET IN DISEASE. By W. GILMAN THOMPSON, M.D., Professor of Materia Medica, Therapeutics, and Clinical Medicine in the University of the City of New York; Visiting Physician to the Presbyterian and Bellevue Hospitals. Octavo, pp. 80. New York: D. Appleton & Co. 1895.

THIS valuable work on Dietetics has been prepared, according to the author, in order to furnish a "textbook in which the practitioner of medicine may find detailed the appropriate diet for each disease which is at all influenced by right feeding." The volume, however, is more than a dietary manual, as a glimpse at the contents will show.

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Since Pavy's work on "Food and Dietetics" no treatise on the same subject of any importance has appeared, and this volume is therefore especially welcome, as it embodies all the newer researches in alimentation. In the opening chapters of Part I the elementary composition of foods and their force-production and economic value are considered.

The classes of foods are then taken up in turn. Milk receives full treatment, all the newer ideas in regard to the alteration of this food-product by microorganisms, the methods of sterilization and preservation, and the various forms of modified milk being considered at length; forty-two pages being devoted to the last subject alone.

Part II is devoted to the consideration of stimulants, beverages, and condiments. Part III is concerned with the preparation of food and cooking, the quantity of food required by the normal body, and the results of starvation and an improper dietary. In this connection the latest researches are made use of. The foods for special conditions, such as age, race, sex, climate, and season, are treated of in Part IV.

Part V considers the digestion of food and the conditions that especially affect it, such as mental emotion, exercise, and sleep. Artificial digestion, elimination of food-waste, and abnormal digestion are subjects likewise treated of in this part.

Valuable as the foregoing pages are, the chief purpose of the book is found in the chapters that follow. In Part VI "Diseases Caused by Dietetic Errors" are fully considered and the various contaminations of food are spoken of. A description of methods used in feeding the sick is contained in Part VII.

"Diet in Disease" is the heading of Part VIII, and here pathology and symptomatology are largely entered into; the author evidently could not forego the opportunity of presenting his ideas on clinical medicine. Seventy-five pages are devoted to the management of diseases of the alimentary canal; all of the more important chemic tests for the gastric secretion are here detailed. The various forms of diarrhea of infancy, constipation, and chronic and acute dyspepsia are ably handled.

Under the heading of "Diseases Especially Influenced by Diet," obesity, with the special forms of treatment, the rheumatic diathesis, gout, and diabetes mellitus, are dealt with at length. Diabetes has thirty pages devoted to it, and the various theories of the causation of this disease are briefly considered.

Part IX contains hospital, army, and prison diets, diets useful in occupations and in athletic training; and the food of infants, young children, and school-children is also considered.

In an appendix are found various receipts for preparing food for invalids.

Altogether we believe this work to be one of the most valuable of recent publications, in that it meets a real need and combines in one volume and in logical relation all that is of worth on the subject.

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EYESIGHT AND SCHOOL-LIFE. By SIMEON SNELL. Bristol, Eng.: John Wright & Co.

THIS admirable monograph on preventive ophthalmology is most welcome. There has long been a field for just such literature. When the principles here laid down have become the property of physicians and teachers everywhere, then, and then only, can we banish the German specter, myopia. We are fast becoming a race of students. The author warns against the ocular evils that wait upon this intellectual evolution. He brings to his work extended experience, wide research, and a knowledge of the whole domain of ocular hygiene that lend to his statements authority. The style is direct, yet easy and pleasing. The volume is so written that it is equally interesting to the layman, the general physician, and the specialist. We wish that Dr. Snell's monograph might be found on the desk of every doctor and educator.

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TWENTIETH-CENTURY PRACTICE; AN INTERNATIONAL ENCYCLOPEDIA OF MODERN MEDICAL SCIENCE BY LEADING AUTHORITIES OF EUROPE AND AMERICA. Edited by THOMAS L. STEDMAN, M.D. In twenty volumes. Volume iii. Occupation-Diseases, Drug-Habits, and Poisons. 8vo, pp. viii, 639. New York: William Wood & Co., 1895.

THE third volume of this noteworthy undertaking contains an article of 137 pages on Alcoholism and Drug-Habits, by Norman Kerr, of London; one of 36 pages on Shock and Collapse, by George F. Shrady, of New York; one of 23 pages on Seasickness, one of 34 pages on Heatstroke, and one of 19 pages on Frostbite, by Albert H. Gihon, of the U. S. Navy; one of 31 pages on Mountain-sickness, by George von Liebig, of Munich; one of 15 pages on Osteomalacia, by W. T. Councilman, of Boston; one of 186 pages on the Diseases of Occupations, by James Hendrie Lloyd, of Philadelphia; one of 92 pages on Poisoning, by Beaumont Small, of Ottawa; and one of 30 pages on Poisoning from Lead, Arsenic, Zinc, Copper, Mercury, Silver, and Phosphorus, by James Stewart, of Montreal. This is a notable collection of names, and it may be said that the articles as a whole are fairly representative in character and comprehensive in scope. Lack of space forbids a detailed analysis of the individual articles, and we can make reference to but a few points that seem to justify special comment. In the first place, the article dealing with metallic poisoning, by Dr. Stewart, is rendered almost superfluous by the previous consideration of all the forms of poisoning therein discussed, except that of silver, in the article on The Diseases of Occupations, by Dr. Lloyd, The latter article is an elaborate monograph, which might have been somewhat abbreviated by the omission of an interesting, though perhaps unessential, digest of the laws bearing upon the employment of women and children in the United States. This valuable article deals principally with a description of those injurious effects of diseases that are direct, characteristic, and indisputable. These diseases are considered in three classes, according as their effects are due respectively to injurious substances, such as lead and the various metals; to injurious environment, such as cold, heat, compressed air, and the like; and to injurious exercise, including the occupation-neuroses. We have already referred at considerable length (see THE NEWS, September 14, 1895, p. 301) to the views of Dr. Kerr on the subject of inebriety. All in all, the volume is a most acceptable one. The type is large, the impression clean and clear, and the paper

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substantial. A little more care in proof-reading would have prevented the misprint of 237 for 287 in the Table of Contents, would in two places on page 28 not have permitted *special* atrophic paralyses to stand for *spinal* atrophic paralyses, and would not have allowed *MacCormac*, in the article on Shock, to be several times spelled *MacCormack*.

# SOCIETY PROCEEDINGS.

## NEW YORK NEUROLOGICAL SOCIETY.

*Stated Meeting, October 1, 1895.*

EDWARD D. FISHER, M.D., PRESIDENT.

### NEURITIS OF THE BRACHIAL PLEXUS AS A SEQUEL OF PNEUMONIA.

DR. W. M. LESZYNSKY presented a man of 36, who five months ago had suffered from an attack of neuritis, involving the brachial plexus upon both sides. This condition had developed during convalescence from acute pneumonia. There was no history of traumatism or exposure to cold, nor was there any evidence of alcoholism, syphilis, or rheumatism. Dr. Leszynski looked upon the pneumonic infection as the direct cause of the neuritis. He said that at present there was a pronounced and typical paralysis of the left serratus magnus, and also some atrophy of the deltoid and supraspinatus. Upon the right side there was well-marked atrophy of the deltoid, with absolute anesthesia in the cutaneous distribution of the circumflex nerve, and complete loss of faradic irritability. There was also some atrophy of the supraspinatus.

### HEREDITARY CEREBELLAR ATAXIA.

DR. JOSEPH COLLINS presented a patient illustrating so-called hereditary cerebellar ataxia. The patient, a boy of 11, was the second of two children. Both his parents were still living, and, aside from a marked tuberculous history on the paternal side of the family, no hereditary taint could be traced. The child had never had spasms, and had passed through the ordinary infectious diseases of childhood. He began to talk and walk, and the teeth developed, at the customary time. The mother said he had never been able to walk or talk like other children. He was always "stiff in his joints," "easy to fall," etc.; he never climbed and played like other children, though he tried to do so. When four years old it was noticed that he was becoming very near-sighted, and glasses were applied, and had been worn since that time. In February, 1894, after returning from an outing with his father, he vomited a large quantity of liquid, and later, clotted blood. A few days before this he had had a fall down a flight of stairs, and to this fall the parents attributed his illness. He had been attending school since his fifth year, and had been repeatedly sent home on account of inability to make any advance. A year ago he had been returned from school permanently. For a year or more there had been periods in which his mother said he could not use the left side of the body, and at such times the arm and leg had become very unsteady and his speech more unintelligible. Great difficulty had been experienced in keeping him warm, especially in the winter. The speaker said that mentally the boy was peevish, irritable, and irascible. He was affectionate, fond of animals and pictures, and, while he could be led, he could not be dominated. When seen on July 21, 1895, it was noticed that he was tall for his years, that his face looked very old, his skin looked and felt dry, and the flesh felt pultaceous. The right side of the face was better innervated than the left. There was very slight grip in the hands. The knee-jerks were exaggerated, especially on the right; the elbow-jerk was lively; there was moderate ankle-clonus. The gait was shambling and reeling; the head was bent forward and the boy walked as if intoxicated; he stood fairly well with his feet wide apart; Romberg's sign was not present. The genital organs were extremely undeveloped. The child's manner of rising from the recumbent posture resembled that of one suffering from progressive muscular dystrophy, except that he did not "crawl up the legs." There was no real nystagmus, but the fixation-power of the eyes was not good, and the eyeballs twitched and there was slight weakness of the external ocular muscles. There was progressive myopia, but Dr. W. A. Holden, who examined the eyes, stated that no real change could be made out in the background. The speech was ataxic, explosive, and sometimes quite jerky. It was almost impossible for the boy to go up and down stairs. Ataxia of the upper extremities was very marked. Mentally he was very defective, particularly in his associative faculties.

The speaker said that this case, although not a pure one, would tend to corroborate the view taken of these cases by Nonne, to whom more than to anyone else credit was due for calling intelligent attention to them. Marie, who discussed Nonne's cases and other cases, suggested the name hereditary cerebellar ataxia. He took for granted a factor which apparently was not necessarily constant, viz., heredity, unless we use the terms hereditary and familiary interchangeably. The sister of this boy, who died in her second year, was affected in the same way, for the parents give a very clear description of her condition. Another element stated by Marie to be constant was optic atrophy, yet in some cases recently reported, and in Fraser's case, the first case to be substantiated by autopsy, this symptom was absent. The condition has been more commonly observed in patients older than the one just presented. In fact, adolescence is the period in which it is usually recognized. It was hardly necessary to refer to the apparent relationship between Friedreich's disease and this condition.

### CYSTIC TUMOR OF THE BRAIN.

DR. L. STIEGLITZ presented a young woman whom he had exhibited to the Society in January, 1893, after she had been operated upon in June, 1892, for a cystic tumor of the brain, situated in the right arm-center.[1]

The cystic tumor was subcortical, about 1½ in. deep, and its walls had been found perfectly smooth. About an ounce of straw-colored, serous fluid had escaped from the cyst at the operation. In discussing the case at the time it was clearly shown that the cyst could not have been of vascular or of parasitic origin, and it was the conclusion that a glioma was at the bottom of the trouble, and on that account a recurrence of the growth had been feared. During the following two years the

[1] Amer. Journ. Med. Sci., June, 1893.

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patient had done very well, and had recovered the use of her arm sufficiently to attend to her housework, but had been subject to more or less frequent focal epileptic seizures involving the left hand or the entire left arm and side of the face. During this period she had also had about five general convulsions, which had set in with the same focal symptoms. In March of this year the patient had begun to complain of headaches, the power in her left hand had again perceptibly diminished, and the focal seizures had occurred more frequent than ever —from one to three times a day. Dr. Koller, who had examined her eyes frequently, found for the first time a beginning cloudiness and swelling of the disc. A recurrence of the original neoplasm or a refilling of the old cyst was suspected, and Dr. Gerster performed a second operation upon the patient in April of this year. Upon exposure of the brain a very small maroon-colored mass about the size of a filbert was found at the point where the cyst had been. This mass was removed, and as it evidently infiltrated the surrounding brain-tissue a broad ring of the latter was excised. The patient made a good recovery. She had two severe general convulsions when the dressings were first removed, but had been free from all seizures ever since—a period of six months. Her arm was at first completely paralyzed, but she had now recovered its use to a certain extent, the only marked paralysis left pertaining to the index-finger, which could not be fully extended, and to the thumb, which could be flexed, extended, abducted, and adducted only very imperfectly. Tactile sensibility was less acute in the paralyzed limb than on the other side. There was marked disturbance of the muscular sense, the patient being very uncertain about passive movements in her finger-joints, especially in those of the thumb and index-finger. The deep reflexes of the arm and the knee-jerk were greatly exaggerated on the affected side. Curiously enough, they were also distinctly exaggerated on the healthy side, though to a far less degree. The microscopic examination of the excised tumor was very interesting. The old cyst-wall was found collapsed, and originating from a point in this wall a small spindle-cell sarcoma was found. This could be seen in the specimen. Sections through the ring of brain-tissue removed showed the new growth to be of a very malignant and complex type. From its character at different points it would have to be termed a melano-glio-angio-spindle-cell fibro-sarcoma. The brain-tissue was infiltrated, and no doubt sooner or later the patient would have a recurrence of the growth.

The case showed that cystic tumors of the brain were not as innocent in character as many would believe, and on that account the excision of the cyst-wall would be advisable in all cases of the kind. If this were not possible at the first operation, it could easily be done at a subsequent operation, a few months later, when the wall would be found compressed into a small, solid mass.

DR. B. SACHS expressed the belief that the original cyst might very well have been of hemorrhagic origin.

THE PRESIDENT said that the clinical history of the case prior to the first operation would throw light upon that question.

DR. STIEGLITZ said that in order to save time he had omitted the details of the original history. The patient had been perfectly well up to December, 1891, when she had been suddenly taken with twitching in her right thumb and forefinger. The twitching had spread rapidly up the arm to the face, and had ended in a general convulsion. In December the patient had had three or four more general convulsions of the same character, but none after this time. She had been subject, however, to frequent focal seizures confined to the right hand. When first seen in December there had been no loss of power in the arm, The weakness in the arm had developed the following March, and had gradually increased until, in June, the time of the first operation, it had become very marked. In spite of the absence of all general cerebral symptoms, the diagnosis of progressive, destructive focal disease, probably a tumor, had been made. The slow and late development of the paralysis after the onset of the symptoms of cortical irritation positively excluded any vascular lesion.

### AMYOTROPHIC LATERAL SCLEROSIS.

DR. WILLIAM HIRSCH presented a case of amyotrophic lateral sclerosis which had developed in a patient who had formerly had anterior poliomyelitis. M. D., 45, gave a negative history as regards syphilis and heredity. About three years ago he noticed a stiffness and weakness in his left leg, which gradually became worse. After some time the right leg also became affected. He soon became unable to use his legs in working his sewing-machine (being a tailor), and his gait became so impaired that he was not able to stand or walk for any length of time. When he came under treatment, four weeks ago, he had complained of nothing else, and there were no sensory symptoms or disturbance of bladder or rectum. The examination showed an atrophy of some of the muscles of the trunk and the upper extremities. The right deltoid, the supraspinatus, and especially the thenar eminence on the right hand showed fairly marked atrophy. There was fibrillation in the muscles of the trunk and shoulder, increased by tapping them with the percussion-hammer. There was also diminished electric excitability, and in some muscles the reaction of degeneration was present. There was no atrophy of the muscles of the lower extremities, and the electric reaction was perfectly normal in these parts. The tendon-reflexes of the lower extremities were considerably increased; the knee-jerks were extremely exaggerated; and there was bilateral ankle-clonus. The last very frequently came on spontaneously, to the great annoyance of the patient. Sensation was perfectly normal in all parts of the body, and the senses of pain and temperature were unimpaired. There were no abnormal conditions in the function of the cranial nerves, with the exception that the tongue was slightly atrophied, and there was a marked masseter-reflex. Speech was in no way affected. There was no nystagmus, and the ophthalmoscopic examination showed perfectly normal conditions.

This was evidently a typical case of amyotrophic lateral sclerosis, and the man was brought here because of a possible relation between the present disease and the old affection.

An examination now showed very marked atrophy of the muscles of the left shoulder and upper arm, but the patient did not think it worthy of mention, as he said it had existed as long as he could remember. This appearance, together with the history, showed that he had

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had in childhood an attack of infantile paralysis. This brought up the interesting question—Does there exist any relation between the present disease and the anterior poliomyelitis, and if so, what is the nature of this relation? Dr. Hirsch said that Ballet and Dutil were the first to enter upon a discussion of this subject. They pointed out that an infantile spinal paralysis might give rise in later life to various affections of the spinal cord, but that they were all limited to the gray matter of the anterior horns. The irritation of the cord by the old lesion enfeebled, they said, the medulla, and made it a *locus minoris resistentiæ*, which, on any occasion, might become subject to further disease. Charcot expressed the view that there existed in some individuals a certain disposition, a kind of hereditary vulnerability of the ganglion-cells of the anterior horns, which at one period of life might give rise to acute anterior poliomyelitis, and at another to progressive muscular atrophy, so that in fact both diseases would form different periods of one and the same pathologic process. In some cases of infantile spinal paralysis, Charcot said, the old scar produced by the inflammatory process in the gray matter of the anterior horns, formed a latent, but permanent, inflammatory focus, which, at any time, might light up afresh, and cause a new set of symptoms. A similar view, the speaker said, was held by Strümpell who, on the theory of the infectious origin of anterior poliomyelitis, compared the scar in the anterior horns to an old tuberculous focus which was capable of setting up a new inflammation at any time. So far as he knew, the case presented differed from all others recorded in literature in that the later disease was not limited to the anterior horns of the gray substance, but that other parts of the cord were also involved, *i. e.*, both lateral pyramidal tracts. He would not attempt to decide which of the theories applied to this case, but it could be proved with absolute certainty by the history of the clinical symptoms that the pathologic process of the present disease started from the place where the old scar of the anterior poliomyelitis was located. This lesion lay apparently in the left horn of the cervical region of the cord. As the man first noticed weakness and stiffness of the left leg, the process must have approached first the left pyramidal tract which lay next to the scar. Then, after the affection of the right horn, which showed itself in atrophy of the muscles of the right upper extremity, the pathologic process spread over to the right pyramidal tract, causing a spastic condition in the right leg. Whatever the theory regarding the nature of the relation between the two diseases, there could be no doubt that there existed such a relation between infantile spinal paralysis and various spinal diseases of later life. Further observation and study of similar cases might throw more light upon this subject, as well as upon the etiology and nature of the diseases in question.

### A REPORT OF A SERIES OF CASES OF MULTIPLE NEURITIS IN INFANTS IN THE CITY OF BRIDGEPORT, CONNECTICUT.

DR. GRAEME M. HAMMOND read a paper in which he reported a series of cases of multiple neuritis in infants in the city of Bridgeport, Conn. There were ten cases in all, the patients ranging from 4½ months to 4½ years in age. In all but two cases there were distinct premonitory symptoms of headache, vomiting, fever. Following this there was a gradual and progressive paralysis, usually beginning in the feet, and extending to the upper extremities, and in some instances, involving the muscles of the trunk, and in two cases, the muscles of deglutition. Accompanying the paralysis there was pain, both spontaneous and on passive motion, and the nerve-trunks were very sensitive to pressure. The area of pain and tenderness accompanied the extension of the paralysis. The reflexes were abolished, and the electric reactions of degeneration were well marked. Two of the cases exhibited symptoms of spinal meningitis, in addition to the neuritis. One case, the youngest, 4½ months old, died after an illness lasting one month. The muscles of deglutition became paralyzed, and the child died from exhaustion. In the other cases recovery began in from four to six weeks, but was not completed until from three to four months. No similar cases were discovered in neighboring towns. After referring to the epidemics of anterior poliomyelitis which have in the past been reported, both in Europe and in America, the reader concluded by accepting the theory of their microbic origin, and expressed the belief that these cases of neuritis were due to a similar cause.

The author expressed his indebtedness to Dr. John C. Lynch, Dr. Samuel M. Carlick, and Dr. J. W. Wright, of Bridgeport, for the reports of cases and for their courtesy in affording him the opportunities for personal examinations.

## CORRESPONDENCE.

### THE COLLEGE-GRADUATE IN MEDICAL SCHOOLS.

*To the Editor of* THE MEDICAL NEWS,

SIR: Can the college-graduate properly take advanced standing in a medical school requiring four years' attendance on lectures? Most medical schools have answered in the affirmative, and admit to the second year's work graduates of literary and scientific colleges who have pursued certain biologic studies. The University of Michigan goes further and admits to the third year in the medical department the graduates of its own literary department who have pursued a prescribed course of study.

The preliminary studies required of the college-graduate by the University of Pennsylvania are General Biology, Comparative Anatomy, Botany, Chemistry, Physics, Histology, Human Anatomy, Physiology, Zoology, and Embryology. The University of Michigan (medical department) devotes the two first years *wholly* to laboratory-teaching, and the third and fourth years to practical medicine and surgery. The branches taught the first year are General and Organic Chemistry, General Anatomy, Bacteriology, Physics, and Histology. During the second year the subjects are Regional and Surgical Anatomy, Anatomy of Nervous System, Hygiene, Embryology, Physiology, Physiologic Chemistry, Histology, and Electro-therapeutics.

The preliminary subjects required at the University of Pennsylvania are now taught in all first-class colleges. If human anatomy cannot be practically taught at a rural college, this branch can readily be made up when

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the student enters the medical school. The question next arises, Can ordinary colleges do a second year's work, such as is mapped out by Michigan University, if the amount of laboratory-work there required is desirable? The answer given is that, with the present rate of development in the smaller colleges maintained for a few years, they will generally be equipped to do this amount of work. If this work is desirable, *it can be done better in the biologic department of a non-medical school* than elsewhere. Whoever has passed through a medical college knows how difficult it is for the student to concentrate his efforts on subjects which he thinks do not directly bear on medicine. Thus he cannot, and does not, study chemistry as he studies anatomy or materia medica. But in a non-medical college chemistry is pursued without any such difficulty as is experienced in a medical school. The cost of living is generally less in the small towns where literary colleges are situated than in the large cities. There is also much less to attract the attention of students from their studies. The disadvantage which is seen is that the study of practical medicine is postponed for two years, and the course is shortened by that much time. However, it would be no more difficult to maintain a preliminary medical school to do two years' work in such places as Meadville, Lancaster, Easton, Bethlehem, and other smaller towns, than at Burlington, Vt., Hanover, N. H., and, as was done in the past, at numerous villages and small towns.

Is it desirable to do this work in the literary college? I believe that it is desirable to have as many cultured and educated medical men as possible. I think this offers one solution of a problem which confronts educators to-day. The preliminary requirements of the classic and scientific college are greater now than they were a generation ago, by fully two years. The medical courses have been advanced from two years to four years. Fully four more years of time are now required to take a collegiate course, and then a professional course at a university, than was required a generation ago. Many young men are cutting the Gordian knot by entering the universities at once on leaving the high school. The universities, on their part, seem to offer little opposition to the entrance of these untrained and unprepared men.

While the work here outlined is recommended to literary and scientific institutions, it is hoped that it will not be undertaken until there is secured sufficient means to properly equip a biologic department. One science-professor, with text-books, will not be sufficient. There must be several well-equipped teachers and laboratories well provided with apparatus, models, charts, and dry and wet preparations. It is the function of the college to provide these for the community in which it exists.

Respectfully yours,

GEO. G. GROFF,

LEWISBURG, PA. Bucknell University.

## SURGICAL SHOCK AS A CAUSE OF DEATH IN WOMEN.

*To the Editor of* THE MEDICAL NEWS,

SIR: In the issue of THE MEDICAL NEWS of September 7th there appeared an editorial note upon the question of "Surgical Shock as a Cause of Death in Women." The writer discusses the question as to whether women are more liable to surgical shock than men, as from the year 1890 to 1894 there have been reported to the Philadelphia Board of Health 63 deaths from shock in males and 173 deaths from shock in females. He also refers to the very decided increase in deaths from shock from year to year, there having been only 12 deaths in females from shock in 1890, as against 54 deaths in 1894. These figures certainly are deserving of attention, but I am quite sure that their explanation lies not in any supposed greater liability to death from shock in women as compared with men. I would offer the explanation that these deaths are in a large measure the result of abdominal sections upon women, done by men who have not had a proper training in this field of work. It will be found on investigation, I believe, that these operations have been performed either by general surgeons, whose training has been entirely general and who have not been taught by a proper apprenticeship the difficulties and dangers of abdominal and pelvic surgery, or by the family-physician having an itching "to do a section." I am quite sure that an inquiry addressed to the eight or ten best-known gynecologists and abdominal surgeons in Philadelphia would elicit the fact that in the 5 years in question, all told, they have not reported more than 15 or 20 deaths from shock, although they have undoubtedly performed nine-tenths of the abdominal operations upon women. Deaths from shock in women, after abdominal and pelvic operations, as a broad statement, are so many unnecessary deaths, and represent deaths from hemorrhage or from greatly prolonged operations. Of course, the exceptions are the patients operated upon *in extremis*, and these operations are seldom attempted except by the more courageous of well-trained gynecologists.

It is never pleasant to speak disparagingly of others, but I feel convinced that the foregoing explanation offers the solution of the cause of the great increase of deaths from shock among women. The same evidence can be derived from hospitals in which a few trained gynecologists operate and where many general surgeons and family-physicians also do abdominal operations. This question came up for discussion in the Philadelphia Obstetrical Society, with reference to a hospital in which one of the members of the Society reported extraordinarily good results. When his attention was called to the fact that the official report of the institution gave a mortality about ten times greater than that which he had reported, his explanation was that which I have already given. The hospital itself has a large staff, many of whom did abdominal operations, and, in addition, any physician could take a patient there and operate upon her, so that the number of operators was extremely large. This mortality from shock is one of the fruits of the doctrine, which has had many advocates both as to principle and practice within the past few years, that a special gynecologic training is unnecessary as a preliminary to the practice of abdominal surgery in women.

Very respectfully yours,

CHARLES P. NOBLE, M.D.

PHILADELPHIA, 1637 NORTH BROAD STREET.

***Dr. Joseph C. Gilbert***, a well-known physician of Chestnut Hill, died on October 26th, at the age of 63 years. He was an assistant surgeon during the Civil War.

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### HARE'S "THERAPEUTICS."

#### A Correction.

*To the Editor of* THE MEDICAL NEWS,

SIR: I am glad that my book on *Therapeutics* is, in the opinion of your reviewer (see MEDICAL NEWS, October 26, 1895), "beyond the range of criticism," because it has reached a fifth edition in five years, but I am sorry that in his desire to criticise he has made a statement which is untrue in regard to acute poisoning by opium. He says that nothing is said of the use of potassium permanganate in acute opium-poisoning, but if you will examine the book you will find it is named as the first antidote to be employed, under the head of "Acute Opium-poisoning."

The book is not intended to be a dispensatory, and descriptions of some of the unusual remedies you name were not inserted in the text because the introduction of the fads of a few clinicians, which, by the by, are either not even mentioned or not commended by the dispensatories, would rob the volume of the usefulness which it seems to possess to the practical doctor.

Yours truly,

H. A. HARE.

PHILADELPHIA, October 25, 1895.

[We regret that the statement made in the review of Dr. Hare's *Therapeutics*, that "in the treatment of acute opium-poisoning nothing is said of the use of potassium permanganate," may give rise to a false impression. Although this omission has been permitted on p. 732 in the Index of Diseases and Remedies, we find, since our attention has been called to the matter, that reference is made on p. 277 to the use of the permanganate in the treatment of acute opium-poisoning, while on p. 291, under the head of "Potassium Permanganate," the statement is made that this agent "is the best antidote in poisoning by morphin and that caused by many other vegetable alkaloids."

The antitoxin-treatment of tetanus, rhythmic traction of the tongue, and the use of strontium salicylate, ammonium salicylate, and cinchonidin salicylate, and of thyroid extract, can scarcely be considered either "unusual remedies" or "fads."—ED. MEDICAL NEWS.]

### THE MEANING OF THE WORD "TEUTONIC."

*To the Editor of* THE MEDICAL NEWS,

SIR: In THE MEDICAL NEWS of October 12th I noticed an editorial comment on my paper "On the Growth of United States Naval Cadets." I regret to say that the term "Teutonic" has been misunderstood by the writer of this commentary.

Webster, edition 1872, gives the following definition: "Teutonic, of or pertaining to the Teutons, or people of ancient Germany; of or pertaining to the ancient Germans in general and to their descendants, among whom are included the Dutch and all who are of Anglo-Saxon ancestry; sometimes, also, in a wider sense, including the Scandinavians; pertaining to anyone or to the family of the languages of these people." Now, the modern North German as well as the South German is a decidedly mixed type, very few of the characteristic racial features of the Teuton remaining in his general make-up. Instances of reversion to this ancestral Teutonic type occur perhaps more frequently in America than elsewhere for good anthropologic reasons; and anthropologists know that such instances occur also in England and Ireland, where they are by no means rare.

This whole question, however, does not form the important part of my paper, and is merely a matter of casual remark.

Thanking you for your otherwise favorable comment, I am,

Yours very truly,

HENRY G. BEYER.

U. S. NAVAL ACADEMY, ANNAPOLIS, MD.

## NEWS ITEMS.

***The Revival of the Index Medicus.***—The following subscriptions for the *Index Medicus* have been received by Dr. Billings up to October 24, 1895, in addition to those already announced in previous issues of THE NEWS:

Boston, Mass.
Dr. E. G. Cutter,
Boston Medical Library Ass'n.,
Boston Soc. for Med. Improvment,
State Board of Health, Mass.
Bristol, England.
Bristol Medical Library.
Brooklyn, N. Y.
Pratt Institute.
Buffalo, N. Y.
Dr. John Parmenter,
Dr. Roswell Park,
Med. Dept., Univ. of Buffalo.
Cleveland, O.
Dr. Hunter Robb.
Grand Rapids, Mich.
Medical Library Association.
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There thus remain some 50 or 60 additional subscriptions to complete the guarantee-fund, which must be done before December 1st in order that the *Index* shall be revived. No physician having the advance of his profession at heart will neglect to support and encourage the consummation of this effort.

***The Samuel D. Gross Prize of the Philadelphia Academy of Surgery.***—The second quinquennial prize of one-thousand dollars under the will of the late Samuel D. Gross, M.D., will be awarded January 1, 1900.

The conditions annexed by the testator are that the prize "shall be awarded every five years to the writer of the best original essay, not exceeding one-hundred-and-fifty printed pages, octavo in length, illustrative of some subject in surgical pathology or surgical practice,

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founded upon original investigations, the candidates for the prize to be American citizens."

It is expressly stipulated that the successful competitor who receives the prize shall publish his essay in book-form, and that he shall deposit one copy of the work in the Samuel D. Gross Library of the Philadelphia Academy of Surgery.

The essays, which must be written by a single author in the English language, should be sent to Dr. J. Ewing Mears, 1429 Walnut Street, Philadelphia, before January 1, 1900.

Each essay must be distinguished by a motto, and accompanied by a sealed envelop bearing the same motto, and containing the name and address of the writer. No envelop will be opened except that which accompanies the successful essay.

The committee will return the unsuccessful essays if reclaimed by their respective writers, or their agents, within one year.

The committee reserves the right to make no award if the essays submitted are not considered worthy of the prize.

***The Results of State Medical Examination in Virginia.***—The following official figures show the results of the examination of graduates of Pennsylvania medical colleges applying between January, 1885, and October, 1895, to the Medical Examining Board of Virginia for licence to practise medicine in that State:

| | Applicants. | Licensed after 1st exam. | Rejected after 1st exam. | Licensed after 2d exam. | Rejected after 2d exam. | Rejected after 3d exam. | Incompetent or withdrew. |
|---|---|---|---|---|---|---|---|
| Hahnemann Med. College | 4 | 3 | 1 | | | | |
| Jefferson Medical College | 36 | 25 | 10 | 2 | ... | ... | 1 |
| Jefferson Medical College and University of Virginia | 1 | 1 | | | | | |
| Jefferson Medical College and Baltimore Med. Coll. | 1 | ... | 1 | | | | |
| Med. Coll. of Philadelphia | 1 | ... | 1 | | | | |
| Medico-Chirurgical College | 1 | ... | 1 | ... | 1 | 1 | |
| University of Pennsylvania, Medical Department | 9 | 9 | | | | | |
| Woman's Medical College | 2 | 2 | | | | | |

***Meetings of Philadelphia Medical Societies:***

| | Meets. | Next meeting. |
|---|---|---|
| Academy of Surgery, | 1st Monday of month, Oct.—June. | Nov. 4 |
| College of Physicians, | 1st Wednesday of month, Oct.—June. | Nov. 6 |
| Section of Gynecology, | 3d Thursday of month, Oct.—June. | Nov. 21 |
| Section of Ophthalmology, | 3d Tuesday of month, Sept.—May. | Nov. 19 |
| Section of Orthopedic Surgery, | 3d Friday of month, Oct.—April. | Nov. 15 |
| Section of Otology, | 1st Tuesday of month, Oct.—May. | Nov. 5 |
| Section of Surgery, | 2d Friday of month, Oct.—May. | Nov. 8 |
| County Medical Society, | 2d and 4th Wednesdays of month, Sept.—June. | Nov. 13 |
| Neurological Society, | 4th Monday of month, Oct.—April. | Nov. 25 |
| Obstetrical Society, | 1st Thursday of month, Sept.—June. | Nov. 7 |
| Pathological Society, | 2d and 4th Thursdays of month, Sept.—June. | Nov. 14 |

***The Archives of Pediatrics*** will commence its thirteenth year with the January number under the business management of E. B. Treat, of New York, and under the editorial management of Dr. Floyd M. Crandall.

***Dr. Thomas Keith***, the distinguished British gynecologist, died at London in the first week of October, at the age of 70 years. He was a most successful abdominal surgeon.

***Dr. Joseph D. Schoales*** died at Philadelphia on October 24th, at the age of 58 years. He was a surgeon in the Union Army during the Civil War.

***Dr. James E. Garretson***, the distinguished oral surgeon and the dean of the Philadelphia Dental College, died at Lansdowne, Pa., October 26, at the age of 67 years.

BOOKS AND PAMPHLETS RECEIVED.

Medical College of Ohio, Cincinnati. Seventy-seventh Annual Announcement, 1895–1896.

A Curious Anomaly of the Female Genitalia with Striking Resemblance to Some of the External Male Elements Converted by Plastic Surgery into a Woman of Normal Appearance. By W. A. H. Coop, M.D. Reprinted from the American Gynecological and Obstetrical Journal, 1895.

Annual Announcement of Trinity Medical College, Established 1850. Toronto, Session 1895–96. Toronto: Daniel Rose, Printer.

When to Wear Glasses and How to Choose Them. By Arthur G. Hobbs, M.D. Pamphlet. Atlanta, Ga.

Scopolamin as a Mydriatic. By Arthur G. Hobbs, M.D. Reprinted from the Refractionist, 1895.

Rest: A Therapeutic Means in Gynecology. By Charlotte Blake Brown, A.M., M.D., San Francisco, Cal. Read before the Medical Society of the State of California, April, 1895.

Report of One-hundred-and-forty-five Operations done for the Removal of Ovarian Tumors and Pathological Conditions Associated with the Ovaries and Uterine Appendages Only. By A. Vander Veer, M.D. Pamphlet. Albany: C. F. Williams, 1895.

Formulaire des Specialities Pharmaceutiques. Composition. Indications, Therapeutiques, Mode d'Emploi et Doses. A l'Usage des Médecines. Par le Docteurs MM. Gautier et F. Renault. Paris: Libraire J. B. Bailliére et Fils, 1895.

Reprints from the Gross Medical College Bulletin, June, 1895. Faculty, Session, 1895–96. When to Pluck a Medical Student. Free Medical Education in Denver.

Bulletin No. 2. U. S. Department of Agriculture. Section of Foreign Markets. The World's Markets for American Products. The German Empire. Washington: Government Printing Office, 1895.

Civil Service Reform in State Institutions—Reorganization of the Medical Staff. By Boerne Bettmann, M.D. Reprinted from the Journal of the American Medical Association, 1895.

Thirteenth Annual Announcement of the Medical Department of Niagara University, 1895–96.

Six Magnet-operations for the Removal of Fragments of Iron from the Eye. By A. Barkan, M.D. Pamphlet, 1895.

Two Cases of Complete Blindness, Caused by Male Hysteria, By A. Barkan, M.D. Pamphlet, 1895.

Some Exceptional Features in Cataract-extraction. By Swan M. Burnett, M.D., Ph.D. Reprinted from the Virginia Medical Monthly, 1895.

On Ocular Affections in Syphilis of the Brain, with Report of Five Cases. By Charles Zimmerman, M.D. Reprinted from the Archives of Ophthalmology, 1895.

A Case of Disseminated Sclerosis, Presenting the Clinical Aspect of Primary Spastic Paraplegia with Atrophy of Both Optic Nerves. By Charles Zimmerman, M.D. Reprinted from the Archives of Ophthalmology, 1895.

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# THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

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## ORIGINAL ARTICLES.

### A THEORY OF THE CAUSATION OF PERMANENT DEMENTIA.


BY HENRY J. BERKLEY, M.D.,
OF BALTIMORE, MD.


THE silver-chromate method of impregnating the nerve-elements shows, beneath the pial surface of the cerebral cortex, one of the most complicated arrangements of the elements to be found in the cerebrospinal axis. By any manner of silver-staining we find in this region a diversity of impregnation; in some nothing but the cells to the free limits of the dendrons are tinged, while in others the nerve-fibers with their end-apparatus intermingled with but few cellular bodies appear. More rarely both fibers and cells are stained in the same section. The differences appear to depend on some unknown quality in the hardening process. Accordingly, there is in this portion of the brain-surface a most intricate intermingling of the protoplasmic extensions of the peculiar class of nerve-cells of the cortex with fibers and endings of fibers of several degrees of fineness, some of them coming from distant regions, others arising from cells in the immediate vicinity of the pial limit.

A glance at a large number of stained sections reveals that these fibers are of different origin, and by their diameter and other characteristics they may be differentiated into several groups:

(*a*) Fibers of considerable diameter that arise out of the medullary masses at the foot of the cellular layers and pass upward, giving off a few collaterals *en route*, finally terminating in forked free endings, chiefly in the lower and mid-planes of the molecular layer. The origin of these fibers is in great part unknown; probably the majority come from the cells of the opposite hemisphere, the spinal cord, the cerebellum, and the medulla.

(*b*) Fibers that arise from small cells situated in the deeper layers of the cortex, pass upward between the bodies of the pyramidal cells, and eventually terminate, after a series of branchings, in the molecular layer.

(*c*) Fibers of small caliber that come from the Golgi intermediary cells, and only reaching the lowermost limits of the molecular layer end among the thicker portions of the dendrites of the pyramidal cells.

(*d*) Axons from the angular and fusiform cells of the molecular layer that do not as a rule pass beyond the limits of that layer.

(*e*) Collaterals from the descending axons of the pyramidal cells of both larger and smaller varieties that turn upward and terminate, some within the limits of the second layer, others at a higher level.

A research that I made a few years ago[1] with a very fine medullary stain developed the fact that the greatest number of the finer fibers of the cortex were medullated almost to the extremities of the end-terminations, and confirmed the results previously obtained by Flechsig. Furthermore, unmedullated fibers of any length were found to be extremely rare. These conclusions we must still adhere to, as staining with the chrome-silver does not enable one to say definitely whether a fiber is medullated or not, and besides it is highly probable that a thin membranous cover may surround the axis-cylinder after the medullary matter is lost, and that in no instance, except at the free termination, is there actually such a thing as a naked axis-cylinder. Therefore, we conclude that the conduction of the nerve-force from cell to termination, and from termination to cellular protoplasm again, is only through the medium of the ending of the nerve-fiber, and that there is no diffusion of the dynamic forces through the cortex, but that the action is a direct one.

The nerve-cells of the cortex that principally occupy our present attention are the so-called psychic cells—the pyramidal cells of both the long and short ascending-process varieties. The cells having short apical processes occupy mainly the uppermost regions of the second lamina, and have almost straight ascending processes penetrating into the molecular layer among the intricate endings of all the varieties of nerve-fibers described as located in this region. The pyramidal cells with long apical processes are situated, generally speaking, on a lower plane than those of the short variety, are of larger size, and are distinguished by the extreme length of the apical process and the richness of its stem and branches in lateral buds.

Both varieties of pyramidal cells are distinguished from other forms of nerve-elements in the cortex by the richness of the lateral protoplasmic buds or gemmulæ. These gemmulæ only begin on the

[1] Medical Record, March 12, 1892.


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primordial process beyond where the capsule commences to lose its definiteness under the microscope. The apical gemmulæ are furthermore differentiated from those belonging to the basal dendrites by several inherent characteristics. In the first place, their direction in respect to the protoplasm of the stem is different, the gemmule of the apical process, beginning at the edge of the stem as an almost imperceptible thread, stands out directly at a right angle with the protoplasm, then gradually increasing very slightly in diameter it ends in a rounded button or knob, which is stained intensely black. The gemmulæ at a little distance above the lymph-space are arranged with great regularity, and are shorter and thicker than more distal ones. As the protoplasmic processes lengthen out, the distance between them increases perceptibly, and they assume more of the appearance of a thin twig adherent to the dendrite. At the terminations of the finer dendrons the gemmulæ are more luxuriant, in the sense of being longer, than near the cell-body.

While the lateral buds of the basal processes have practically the same form as those on the apical branches, the closely set rectangular arrangement of the buds is wanting; they are obliquely set, longer, and resemble closely those of the terminal dendrons on the highest portion of the ascending twigs.

Occasionally one may be called upon to distinguish a subvariety of gemmule. Here and there one is met that is longer than its fellows, stouter in its attachment to the protoplasm of the stem, and has a subdivision into two terminal arborizations. Differences in the function of these two varieties, if present, are of course unknown.

The only other variety of cortical cell we are now especially interested in is the angular Golgi cell of the middle layer, whose single axon turns upward toward the molecular lamina, terminating among the extensions of the pyramidal cells in the middle regions after a number of subdivisions.

The disposition of the axons in the middle layers of cells is somewhat different from the same structures in the higher regions. The thick, ascending fibers coming from the medullated masses give off few collaterals in the mid-regions, but pass higher up, where they come into close contact with the terminal twigs of the pyramidal cells. The axons from the intermediary cells, on the other hand, do not pass up so high, and may be seen coursing closely to the protoplasm of the thicker portions of the basal and apical dendrites. Collaterals from the descending axons of the pyramidal cells also return toward the surface, and may be seen to end in terminal varicosities against the protoplasm of the dendrites of other cells. Lastly, a large number of fine threads, coming, mainly, from the thicker fibers, are seen forming nests around the bodies of the pyramidal cells, and by their terminations distribute their dynamic forces directly to the protoplasm of the corpus, and, in especial, the region of the nucleus.

It would thus appear that the nervous stimuli reach the cell in several ways, and that each cell is influenced by a variety of stimuli arising from a number of cells, situated both intrinsic and extrinsic to the convolution. It would also seem that the protoplasmic processes of the neuron conduct impulses downward to the body of the cell, from the fibers terminating upon the dendritic processes. Stimuli may also be carried upward from the basal processes to the cell-body, and, besides, there is the nest of fine terminal fibers surrounding the cell-body proper.

It has seemed to me that the difficulty the dynamic forces, from the nerve-endings of this latter terminal arrangement, have in reaching the cellular protoplasm is very great, as they are obliged to pass through the cell's capsule as well as the fluid in the lymph-sac before being able to excite, dynamically, the cellular protoplasm. On the other hand, the protoplasmic extensions, at least the finer ones, are to all appearances free from covering, or, if covered by any membrane, this must be of exceeding tenuity, and of a character that cannot greatly interfere with the passage of the stimuli from the terminal ending of the nerve-fiber.

Personally, I am inclined to the belief that the dendron is furnished with some retaining membrane of infinitesimal thinness, and imperceptible by any of the ordinary methods of staining, and through which the stems of the gemmulæ pass, to come into contiguity with the free extremities of the nerve-endings, and, accordingly, there is only at these points free protoplasm.

We have, therefore, two possible ways in which the nerve-stimuli from extraneous sources may reach the corpus of the cell: First, the conduction from the primitive and secondary dendrites to the body of the cell; and, secondly, the direct propagation of a stimulus from the surrounding fine fibers to the corpus of the cell. Apparently, from the wide expansion of the dendrons and greater capabilities for the direct reception of a stimulus, it would seem that at this higher level they received a greater proportion of the impulses coming through the numerous sources to the upper portion of the middle and to the molecular layer, and that the terminations around the body of the cell were of secondary importance in the sensorimotor economy.

The question at length arises in what manner do the twigs of the dendrites receive the stimuli from the nerve-fibers. We have already seen that the dendritic twigs have arising out of the lateral aspects of their protoplasm large numbers of thin, pin-like processes, and that around these coil fine

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axis-cylinders, usually provided with short rectangular branches ending in small varicosities. These axons ascend with the dendrons toward the pial limit, and are met in the molecular layer by large numbers of terminal branches from a variety of sources. Now the fibers that ascend with the dendrites are fine varicose, and coil very closely around the buds, twisting in and out between them, and eventually terminate in bulbar endings that closely approximate some of the knob-like tips of the gemmules.

To suppose for an instant that naked axis-cylinders are present in considerable numbers in the cortex is to me an impossibility, for we must necessarily suppose in such an event that in the closely packed arrangement of axons and dendrons presented by the outer portion of the pyramidal and in the molecular layer, where fibers and dendrites touch each other in all directions, the stimuli would quite as often be aberrant as direct, and as frequently reach the wrong as the right destination. Naked axis-cylinders are in all likelihood a physiologic impossibility in the cerebrum, for were they numerous we can suppose nothing but a constant overflow of stimuli from one cell to another, and consequent incoördination not only of thought, but also of action.

In what manner, then, do the axons influence the protoplasm of the dendritic twigs and corpora? Strictly and only by the uncovered free-ending coming into close contiguity with the knobs of the gemmulæ of the dendrons, the nerve-impulses being continued through the medium of the gemmulæ to the dendrite, and through it to the body and nucleus of the cell. Around the lateral buds of the dendrons we have often remarked the fine fibers coiling. In the majority of the preparations it is impossible to find more than the thread of the varicose fiber, but in exceptionally successful preparations numbers of the free, knobby and forked terminations may be found to end in close proximity to the gemmulæ of the dendrons; so close, indeed, that it is not easy to determine whether the two touch one another or not. We are inclined to believe that they do not, as in some instances there is a perceptible interval, while in others the slightest overlapping would produce the effect of a direct contact. The construction of the gemmule is peculiar from the fact that the distal portion is much broader than the basal, and well adapted for the reception of an impulse on the broad knob. Contractile movements of the cell are certainly to be considered in the contact, as it may possibly be that at certain times, when the dynamic forces are passing from fiber to cell, the end of the fibre and the gemmule are in direct adaptation, one with the other.

In a considerable number of cases of terminal dementia, or dementia from the effects of alcohol, and from other poisons that act unfavorably upon the protoplasm of the nerve-cell, we have found a disappearance of the gemmulæ, particularly those upon the primitive dendrons of the pyramidal cells. The disappearance of the buds may be only from the finer twigs of the apical dendron, or may extend further downward to the thicker portion, or may even involve the basal dendrites. In any event, the buds disappear from the diseased portions of the dendrites, and in the following manner: A local swelling of the protoplasm of the twig usually, though not invariably, makes its appearance; the gemmulæ lose the intensity of their staining, and finally one by one vanish completely; and the dendrite, in the intervals of the swellings, becomes reduced to a thin thread, or, when the morbid process is far advanced, to a stump.

FIG. 1. FIG. 2.

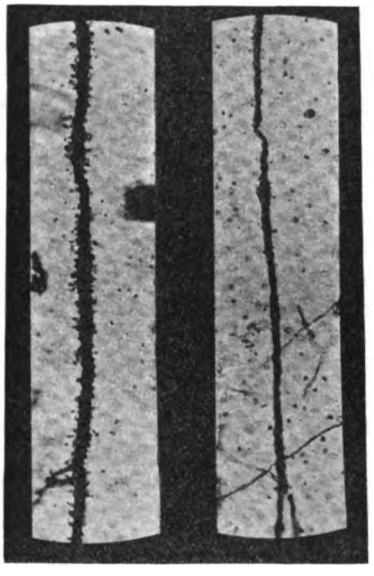

FIG. 1.—Photograph of a portion of a normal primordial process of a psychic cell of the long apical-process variety, showing very numerous and well-developed gemmulæ along the sides of the stem. From the brain of a well-educated man who was executed for crime, and the autopsy performed immediately after death. Enlarged 560 diameters. (Photo. by DR. A. G. HOEN.)

FIG. 2.—Photograph of a portion of a primordial process of a psychic cell of the long apical-process variety, showing almost total absence of the gemmulæ along the sides of the stem. From the brain of a case of terminal dementia, the subject dying at the age of fifty-two years. Both specimens were taken as nearly as possible on a similar plane. Enlarged 560 diameters. (Photo. by DR. A. G. HOEN.)

Now, as already indicated, we have conceived the theory that the function of the gemmulæ is to receive the nervous impressions from the fiber, to transmit them to the protoplasm of the dendron, and thence to the cellular body. Once the gemmules lose their vitality or in any way become diseased, conduction of nerve-impulses is no longer possible,

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and the coördination of the cellular elements ceases. Confusion of thought is at first the result; then, as the morbid process grows deeper and more widespread, coördinated thought almost entirely ceases, and a terminal dementia follows as a natural sequence. In this decadence of the mental powers it is unnecessary to suppose that all the nerve-elements, from their complex relations by means of their axons, are necessarily degenerated.

It is not considered for a moment that the cell-body and its surrounding nerve-terminations play an unimportant part in the progress of the deterioration; only, as the dendrites are the more delicate and sensitive to the effect of an injury from the impression of toxic or other disturbances of whatever nature, they suffer first, and afterward the degeneration of the cell-body plays a secondary but equally important part.

While all these changes are taking place in the protoplasmic extensions of the cell, the axon shows little or no change, but the resistance of the axon and its collaterals to destructive influences is very great, and only after the practical death of the cell's corpus—except in cases of actual inflammation of the tissues—can its involvement come into play. Neurons having their processes totally degenerated, and their bodies reduced to stumps, have still as perfect axis-cylinders and collaterals as the normal cell, and with large numbers of such cells we have been able to trace axons from their origin at the basal end of the cell-body down to the medullated masses, and their collaterals to their varicose endings.

To resume, we repeat that the conduction of the nerve-stimuli to the cell-corpus is principally achieved through the medium of the lateral buds or gemmulæ, and that these delicate portions of the cellular protoplasm are the first divisions of the nerve-body to atrophy and disappear in certain diseases of the brain; then, from the loss of direction as well as from the want of originative impulses, incoördination of thought and motion results, and finally a permanent dementia is the consequence of a widespread degenerative process involving large numbers of the cortical neurons.

Our conclusions have been drawn partly from the cerebra of the human being, partly from the cerebra of small animals systematically poisoned by the action of various toxins exerting a destructive influence upon the cerebral nerve-cells.

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***Dr. N. O. Werder*** has been elected Professor of the Diseases of Women in the Western Medical College in succession to Dr. W. J. Asdale, resigned.

***The Pasteur Institute.***—M. Decleus has been elected director and M. Roux subdirector of the Pasteur Institute in Paris.

## *SOME REMARKS ON ANESTHESIA FROM ETHER AND CHLOROFORM.*[1]

BY SAMUEL M. BRICKNER, A.M., M.D.,
OF NEW YORK.

IT is well for us occasionally to pause in the midst of routine practice to inquire whether the methods that have characterized our work are the correct ones, in view of modern light, and whether we can improve upon them to our own satisfaction, and to the welfare of those who see fit to put themselves under our professional guidance and care. I have chosen this subject because it is trite and well-worn, and because comparatively few men, in my relations and experience, seem to attribute sufficient importance to the total abolition of consciousness and sensation that we call anesthesia.

Complete narcosis is always dangerous, though the anesthetist be ever so expert, though the patient have been operated upon successfully many times, though the apparatus and material be of the most superior quality, the fear that a sudden fatality may supervene cannot be shaken off. If ether be used as the narcotizing medium, there may occur sudden respiratory paralysis, vomiting with inhalation of the vomitus, or a remote broncho-pneumonia. Should chloroform have the preference, the patient is under danger of syncope or of a parenchymatous hemorrhage from relaxation of the arterioles. Instances are not far to seek of fatal issue in narcosis from both ether and chloroform. Every physician can recall cases in his own experience or in that of his friends. Nor is the outlook any brighter for the other general narcotics. The A. C. E. mixture of Billroth has its record of deaths; and, indeed, from its very composition it is a dangerous anesthetic, for the fluids do not evaporate at equal rates, and the purpose of the alcohol and ether—to stimulate cardiac action after its depression by chloroform—is defeated, since first the ether evaporates, then the chloroform, and finally the alcohol. The patient is, therefore, first under the influence of the ether, and during the latter period of his narcosis almost completely under that of the chloroform.

Of nitrous-oxid gas and ethyl bromid it is scarcely worth while to speak, for the former can be used only for short periods of time, and the latter, though recently again having established a temporary hold, met its death-blow in 1881, shortly after its introduction as an anesthetic, by causing two deaths from unquestioned syncope.

General sensory and motor anesthesia for surgical purposes is so sublime in its conception and gives the profession such an ideal fortification, is such a boon to those who must go under the knife and

[1] Read before the Metropolitan Medical Society, New York, September 24, 1895.

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who struggle in travail, that it becomes the sacred duty of all who have taken the Hippocratic oath to mitigate the dangers of narcosis to the man who suffers from a compound fracture and to the woman in the throes of labor. He who does not give his attention to every detail of anesthesia, and still considers himself competent to administer ether or chloroform, is like the surgeon who has never studied anatomy, and of whom Sir Astley Cooper said: "I would not remain in the room with a man who attempted to perform an operation without a knowledge of anatomy; he can but mangle the living if he have not operated on the dead." Knowing his own weakness, and still daring to risk his patient's life, a physician should be considered a fit subject for practice by a "sharpened form of the cephalotome or by that modification of the fillet which is called into use under other circumstances, when fatal coincidences become too frequent."

But it is not alone by the chemistry of the narcotics that death ensues, though we would fain attribute all such deaths to some mysterious action on nerve or cell. There are sins of omission and sins of commission on the part of the surgeon which can be held accountable for some, at least, of these unfortunate fatalities. In the preparation of the patient, for instance, it is not sufficient to tell the nurse or attending friend: "Give him nothing to eat." The surgeon must insist upon it that for *six hours at least* no solid food should pass the stomach, and that *four*—at least *three*—hours must elapse after the ingestion of fluids previous to the administration of an anesthetic. Necessary stimulation may be given by the rectum; it should never be given by the mouth.

An insufficient or careless physical examination may remain a haunting spirit should a patient with an unrecognized aortic insufficiency succumb to chloroform; and although authorities differ, my own experience would lead me to eschew ether in the face of kidney-disease. So, too, a brain-tumor and advanced pulmonary disease are warnings against ether, and arterio-sclerosis makes the administration of chloroform serious, if not actually dangerous. Similarly, nervous exhaustion from any cause acts as a contraindication to ether. Bearing these little facts in mind may save a patient or two; forgetting or neglecting them is little short of criminal.

Sins of commission are harder to condone than mere menial transgressions. What may be said of the method of administering anesthetics in our large hospitals? Would any of us be willing to trust to the surgical or medical judgment of a third-year medical student? Would we put into his hands a curet or a trephine, and bid him proceed with an operation? Would we think of consulting his opinion on a question of sustained or diminished reflexes, or on the relative qualities of heart-action? And yet we do these very things, and more, by putting into the stripling's hands the most delicate part of a surgical procedure. With absolutely no experience he steps from the county-clerk's office into the ether-room, and, with the knowledge only that ether and chloroform abolish consciousness and sensation, proceeds to narcotize some helpless patient. It is an inexcusable as it is a harmful custom—harmful alike to patient and physician. The young doctor is injured because, if not properly instructed, he never learns properly how to administer an anesthetic. The patient's system is saturated with the narcotic until his stertorous breathing is heard far beyond the confines of the operating-room. He recovers from the operation with an ocular conjunctivitis induced by the constant pressure of the anesthetist's index-finger on his cornea; the soreness about the angles of his jaws gives him no love for the man who held them in a vice-like grip. Major accidents are all too common, and the scene is by no means strange of all hands assisting at artificial respiration, and poking hypodermics into cyanosed limbs. Here is a chance for needed reform; for it is a superficial abscess on our body medical, and a few incisive words from medical boards could establish a permanent cure. Let seniors have charge of anesthetics instead of juniors, and compel them to be thoroughly familiar with the physiologic and pathologic actions of the narcotics. The junior can make as good an instrumentarius as the senior, while the added experience of the latter will make him a much safer anesthetist. In addition, let two men preside at the upper end of the operating table, one to watch the pulse, the other to keep his eye fixed on the respiration. Make the young men who are to act as controllers of life and death read some standard work on anesthesia, such as Kappeler or Lyman, and pass a rigid examination before a committee of attending surgeons before the lives of patients are entrusted to their willing but helpless care. The ideal method would be to have a regular anesthetist attached to each hospital, whose duties should be didactic as well as practical, for it would be unjust to deprive hospital-internes of their one great opportunity to learn narcotic administration. It is of the highest importance to the community that men who give anesthetics should understand their duties fundamentally; they cannot learn them properly if the haphazard method of giving ether and chloroform in the hospitals is continued.

It sometimes happens that the abdominal surgeon finds it essential to put his patient in the position known by the name of Trendelenburg. So long as it is absolutely necessary for the successful performance of the operation it may be kept up. But it is dangerous for the patient, and the surgeon must not

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forget that after all his patient's life is the highest consideration. The intestines in this position are thrown up against the diaphragm, and the movements of that muscle become much impeded. Respiration becomes shallow, and the patient cyanosed. Three cases in my own experience, operated on in the Trendelenburg position, have gone, with the help of broncho-pneumonia, to those confines where doctors are not needed, and where, if the lamented Autocrat is to be believed, there are few within call.

Of the proper, approved methods of administering ether and chloroform, and of the ordinary precautions before, during, and after an anesthetic, I hesitate to speak, for these are not within my present province, and they should be familiar to every man in the active practice of medicine. I would like to escort you through the labyrinth of detail involved, for it is an interesting and instructive journey, but my time-limit forbids.

I fear I have given a most gloomy prognosis for the poor individual who is compelled to undergo complete anesthesia. Very fortunately, however, the greater number of narcoses by ether and chloroform proceed to complete recovery of consciousness with no more serious sequel than a few hours of vomiting. It is to the relative safety of the two great narcotics, however, that I wish to direct your attention.

Were I obliged to take an anesthetic, and did I place any high value upon my life, I should unhesitatingly choose ether. Carefully administered, with a proper preparation of the patient, and with a pure drug, it is safer than chloroform, because when it does kill, it kills by respiratory paralysis. And a patient whose heart still beats vigorously has a very good hold on life. Moreover, the asphyxia comes about so gradually that only a most careless anesthetist can overlook the threatening symptoms. Cases are on record, indeed, in which ether has caused sudden death; but they are so rare, compared to similar fatalities caused by chloroform, that ether must be looked upon as the safer of the two. Whoever has been unfortunate enough to witness a death from chloroform knows how hopeless all efforts at resuscitation prove. When chloroform kills, it does its work quickly. If it be given in concentrated form the heart may stop first; somewhat diluted, circulation and respiration may be arrested together; much diluted, it is possible for the heart to continue to beat after respiration ceases. There is no gradual cessation of respiration with a slowly appearing cyanosis, as there is in ether-poisoning. Suddenly, the face becomes pale or livid, the lips white or black, the mouth stands open, the pupils are widely dilated, the radial artery is pulseless, the heart has stopped, the patient takes a few short gasps, and the ghastly picture of death is before the astonished and helpless surgeon. I have lived through three such experiences, and they may have prejudiced me; for two of the patients died before anesthesia was established, and both had undergone previous operation. True, the after-effects of chloroform are not usually as dangerous as those of ether, but even the broncho-pneumonia of ether can be prevented if the prophylaxis is well managed by keeping the fauces clear of mucus, and insuring against the inhalation of vomited matter by proper means. Incidentally I am not a believer in the induction of pneumonia through the irritating influence of ether *per se*.

In the United States a death from chloroform is regarded as something avoidable since ether is the national anesthetic. Nor do I believe that this is solely because its narcotic use was discovered here. The American people are too practical to cast aside any good remedy or usage, particularly in a case of such vital importance. On the Continent, however, except in Lyons, France, chloroform is still in high favor, and the number of sudden deaths from its use does not seemingly alarm the surgeons. In the Vienna General Hospital, for instance, out of 2000 annual autopsies, six are regularly ascribed to chloroform, and this number includes only those cases of death by chloroform in which a previous pulmonary or cardiac lesion was not diagnosticated.

A recent private communication from Professor Kolisko, of the pathologic department of the University of Vienna, gives me the assurance that there are cases of sudden *exitus* during chloroform-inhalation which rest upon a condition the previous diagnosis of which can only partially be made. Briefly summarized, a constant condition found is the *habitus lymphaticus*, characterized by a persistent thymus gland, with an increase of its lymphatic tissues, enlarged lymphatic glands, adenoid vegetations and enlarged tonsils. In cases in which these conditions, or any of them, are known, chloroform should certainly be withheld; but since we cannot diagnosticate the presence of a thymus gland, is it not well to remain faithful to ether? Again, there seems to be some fateful connection between hypoplastic bloodvessels and chloroform, for the former are very frequently found at autopsy after chloroform-narcosis. This is useful knowledge in choosing an anesthetic in those cases in which there is a marked difference in size between two corresponding arteries.

Like a comforting courier from the battlefield the news came to us from Germany last winter that even chloroform-anesthesia can be robbed of its dangers. Rosenberg, of Berlin, called attention to the fact that by spraying the nose with a 10 per cent. solution of cocain, the disagreeable effects of chloroform, both before and after, could be abolished, and the narcosis rendered safe thereby. I refrain from entering into a physiologic discussion of the use of cocain in this instance, and will refer you to

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Rosenberg's original paper. Suffice it to say that I have tried this method in eight cases (3 of ether, 5 of chloroform), and have been delighted with the ease and rapidity of abolishing consciousness, the absence of coughing and gagging, the agreeable recovery, and the very casual after-results. One of the cases was in a patient exhausted from purulent peritonitis, and the attending surgeon hesitated to open the abdominal cavity. Under the chloroform and cocain-spray it was safely done, and a large quantity of pus was evacuated. The anesthesia lasted twenty-five minutes, with no bad effect upon the patient. The dose of cocain received is almost a minimal dose, and one need, therefore, not to fear personal idiosyncrasy for the drug; and, indeed, it would be far better to experience a temporary annoyance from the use of cocain than to have a patient in that precarious condition in which his slender hold on life depends upon a hypodermic needle and a rectal tube.

Although the printed news of this innovation came from Berlin, I am happy to say that the discoverer of it was Dr. Felix Cohn, one of our members, who used the cocain-spray in his chloroform-operation for submucous resection of the septum as early as 1891, and, though his use of the drug was for hemostatic purposes, he noticed the gentleness of the narcosis.

I wish finally to call attention to a few procedures in cases of suspended respiration and threatened shock. In rhythmic traction of the tongue, as recommended by Laborde, we have a measure of decided value. Personally I know of two cases in which, by its use, the respiratory function was restored after apparent cessation, in one permanently, in one temporarily. It is certainly worthy of extended trial.

The intravenous or intraarterial infusion of a normal saline solution followed by thorough dosage with strychnin has many advocates, and among them myself. It has been said that when a patient quietly submits to the necessary maneuvers, this is a useless measure. But three out of a score or more of cases which I have infused have gone on to recovery, and if we can always save 14 per cent. of apparently hopeless cases we should not abandon our efforts. Finally, let me urge that so long as there is a perceptible heart-beat, let no effort be stopped which may renew the life departing in narcosis from ether or chloroform.

Briefly recapitulated, I would lay stress upon:

1. Careful administration of any narcotic, with minute attention to detail.

2. A reform in the giving of ether and chloroform in hospitals.

3. The avoidance of ether in cases of nervous exhaustion due to brain-tumor, advanced carcinoma, pulmonary or renal disease, or acute affections, such as intestinal obstruction.

4. The avoidance of chloroform in cardiac and arterial disease, when the *habitus lymphaticus* exists, when there are enlarged glands or tonsils, or adenoid vegetations.

5. Ether is safer than chloroform for general use. Ether kills slowly by respiratory paresis; chloroform kills quickly, usually by syncope.

6. The A. C. E. mixture and ethyl bromid are not to be relied on.

7. The spraying of a 10 per cent. solution of cocain into the nose before the administration of ether or chloroform.

8. Unremitting efforts at resuscitation in cases of respiratory cessation. In cardiac syncope little is to be hoped for.

I believe that attention to the details dwelt upon in this paper—though they could be vastly extended—would largely rob general anesthesia of its fears and of its horrors, and that care and caution bestowed upon this part of surgical and obstetric relief will aid in giving this greatest of blessings the unsullied name it deserves.

109 WEST 82D ST.

## THE URINE IN NEPHRITIS.[1]

BY JOHN A. LICHTY, M.PH., M.D.,
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WHILE the signs and symptoms of nephritis are many and rather definite, yet the true condition of the kidney can only be definitely learned from the condition of the urine. It is not my purpose to enter into an exhaustive description of the urine in nephritis, but simply to emphasize some very necessary points frequently overlooked in the hurried examinations usually made by the busy physician. New books on analysis of the urine are at present appearing every week, and it would seem almost impossible to offer anything new upon such an exhausted subject; yet these are often more theoretic than practical, and fail us at the very points upon which we most need help. Hence it will not, I hope, be considered an imposition upon my part to offer a few remarks upon the urine and its examination in this very important disease. The causes of albuminuria, aside from actual nephritis, are numerous. Physiologists mention some ten or twelve; yet on looking them over carefully, it will be found that the underlying cause is always some irritant that has disturbed the kidney itself or some other part of the urinary tract. The so-called "physiologic albuminuria" must be looked upon with suspicion. Normal urine should give no reaction with the usual tests for albumin. When the usual tests reveal albumin, and it is proved beyond a doubt by the absence of pus that the albumin is not from an

[1] Read before Ontario County Medical Association, October 8, 1895.



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inflammation somewhere in the urinary tract, it is a physician's duty to be diligent in searching for the signs and symptoms of nephritis before he dares to assign such anomalous excretion to normal, physiologic function.

In examining the urine, aside from the more common points to be observed, I wish to lay emphasis upon four facts:

1. A continued low specific gravity must be looked upon with grave suspicion, until it can be proved beyond a doubt that the kidneys are normal.

2. In nephritis, especially of the chronic interstitial type, it may happen that at times during the greater part of the disease the urine may contain no albumin that can be detected.

3. Casts may be present in the urine when it is impossible to detect any albumin by the usual tests.

4. Casts are very easily destroyed in the urine either by bacteria or during the process of fermentation, and unless the examination is made within an hour or two after urine has been passed, the failure to find casts does not prove the non-existence of nephritis.

As to the first proposition: The low specific gravity; the normal specific gravity, as is well known, is from 1015 to 1025. When it is lower than 1015, and the quantity is great, it will of course be necessary to consider the possibility of the existence of diabetes insipidus. Concerning this disease very little seems to be known. Its pathology is obscure and its occurrence rare. A diligent search for casts must be made to differentiate between diabetes insipidus and chronic interstitial nephritis in a late stage. In the *University Medical Magazine*, June, 1893, Dr. H. C. Wood, in a lecture upon chronic contracted kidney, reports a case in which the continued low specific gravity was the only point at all suspicious. No albumin was detected, and casts were found only after repeated examinations, but they were positive in their nature. I have since had several cases similar to this one mentioned by Dr. Wood.

CASE I.—Mrs. C. H. S., aged 36, after two attacks of diphtheria, noticed swelling of the feet and shortness of breath. The heart was found normal, the specific gravity of the urine 1010. There was no albumin and no casts at the first examination. The amount of urine in 24 hours was 70 ounces. Later, by means of the centrifuge, I threw down the sediment of a fresh specimen, and found a few hyaline and granular casts. This was verified several times later, and the patient was placed upon a line of treatment that relieved her of the edema of the feet and the dyspnea.

As to the second proposition—that nephritis may exist without casts or albumin being present during part of the disease—Dickinson, in his treatise on albuminuria, mentions this fact. Various explanations are given. The one most plausible, and which I think I have often seen confirmed on the postmortem table, is that frequently only a part of the kidneys is involved, and, this part being almost entirely effaced functionally, the normal part of the kidney carries on the eliminative process. When, however, any severe strain is thrown upon the kidney—as after a heavy meal of albuminous food, after severe exercise, or after a cold—the old, wornout part of the kidney tries to resume its function, but now performs it imperfectly, and casts and albumin are precipitated.

CASE II.—Mr. S. W., aged 55, a druggist, was first seen July 27, 1893, at which time he gave a history of having had edema of the legs ten years before, and having been "cured" of "Bright's disease." He had, however, not been well since. There were symptoms of gastric dyspepsia; the skin was dry and scaly, the pulse rapid, sometimes intermittent; the aortic second sound was accentuated, and the arteries thick. The specific gravity of the urine was 1015; it was pale, but no albumin was present; 56 ounces were passed in 24 hours. Repeated examinations gave the same result; the specific gravity was always low. On July 17, 1894, the patient was seen again, and his physical condition was about the same as the year before. The specific gravity of the urine was 1010; it was acid, pale, with abundant albumin, and many hyaline casts. Just one week previous to this examination the same patient's urine was reported by a physician in whom I have great confidence to contain neither albumin nor casts. On August 24, 1894, the patient died of uremia. No autopsy was held. It is evident in this case that the "Bright's disease" of ten years previous had not been cured, but that the albumin had merely disappeared from the urine, and reappeared just five weeks before death. How often it may have appeared and disappeared during those ten years no one can tell.

The third proposition, that casts may be found when no albumin can be detected, may seem paradoxic from the fact that casts are formed of albuminous material. The test for albumin most commonly used is the heat and nitric-acid test; though Heller's, or the contact-test, is the most delicate practical one. Its delicacy reveals the presence of 0.00025 per cent. of albumin; but in the later stage of interstitial nephritis, when there is usually marked polyuria, a number of casts may be found, and yet not sufficient albumin be present to give an appreciable reaction with the usual test. I have found as many as from three to six hyaline casts under one cover-slip in a urine giving no reaction for albumin.

CASE III.—The patient was Mr. C. M., aged 45, single, who four weeks before being seen by me began to notice swelling of the legs and dyspnea.

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When first seen his temperature was 95.2°; he was pulseless at the wrist, the respirations were 22, and he had general anasarca. A mitral regurgitant murmur was present. The specific gravity of the urine was 1030; it was acid, and contained no albumin and no sugar, but a number of narrow hyaline casts. Subsequent examinations revealed no albumin. Nine days later the patient died of uremia, and at the autopsy the kidneys were found to be small, contracted, and granular.

Within the past four months I have seen seven cases whose urine contained casts at various times, but never gave a reaction for albumin.

And now as to the necessity of examining urine soon after it has been passed. After urine remains standing for a time, certain microorganisms, such as the bacterium ureæ and micrococcus ureæ, develop within it. These decompose the urea, and ammonium carbonate is set free, which, with the microorganisms named, will disintegrate tube-casts. The usual way of examining urine is to pour it into a conical glass as soon as the specimen is received, and then wait from six to twelve hours for a sediment. But by allowing it to stand so long the casts may be decomposed, especially if the laboratory is warm. To obviate this difficulty I have made use of the Metzger centrifuge, a new instrument for the precipitation of the sediment of urine and sputum, and for the volumetric analysis of red and white blood-corpuscles. With this one can throw down a sediment from a specimen of fresh urine within a few minutes after it has been received, and thus examine the sediment under the microscope at once. It is practically impossible for any casts to escape detection if this method is used.

I cannot leave this subject without making reference to the necessity of an early diagnosis of nephritis. Very rarely is the disease initiated with an acute attack, but, on the other hand, it frequently begins insidiously, and only after the irreparable mischief has been done are the symptoms sufficiently urgent to lead the patient to seek medical advice. Since the treatment of nephritis, so far as restoring the organ to its former healthful condition is concerned, is so decidedly unsuccessful, our greatest progress in this line must be in the way of prophylaxis. This involves the early recognition of any condition of the urine that may tend to produce irritation of the kidneys, or that may show that such irritation has already taken place. It would, therefore, seem advisable for the family-physician to urge upon the community from which his patients come the necessity of having the urine examined at intervals—much as dentists urge their patients to have their teeth examined—and especially to have it examined during and after any severe illness. Such a course would, no doubt, save many people from death due to nephritis.

# CLINICAL LECTURE.

## FOUR CASES OF MIXED OR IRREGULAR FORMS OF MULTIPLE NEURITIS IN WHICH PARAPLEGIA WAS THE MOST PROMINENT SYMPTOM IN THREE, AND A CONDITION SIMULATING HEMIPLEGIA IN THE FOURTH.

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LECTURE II.

(Concluded from page 487.)

WE shall resume the consideration of the subject presented by the four patients whose cases we were studying at our last Saturday's clinic. You may remember that we concluded that all the patients were suffering from multiple neuritis of an irregular or mixed type. I had arranged to have a typical chronic case of multiple neuritis before you to-day in a man upon whose case I lectured to you last year. The lecture was published in THE MEDICAL NEWS of December 22, 1894. The patient has been staying on the County Farm for a few months, but he has been attracted by the new messiah, Schlatter, and cannot be found to-day. Although the case is chronic, nevertheless the symptoms and much of the history are typical of the ordinary form of multiple neuritis. They are as follows: "D. F., fifty years of age, colored, single, a male laborer, was born in Kentucky, but has been living in Colorado since 1872. As a child he was well and strong, and thinks he did not suffer from any of the diseases incident to early life. When two years old he had an attack of smallpox, and was ill about four months. At his thirtieth year he contracted a chancre. He has never indulged in alcohol to excess. During the last twelve years he has worked in damp places, and frequently contracted colds. Ten years ago the glands of his neck suppurated, and about that time he experienced numb and tingling sensations in the feet and legs below the knees. These sensations would pass away on exercising, but, when at rest, his legs would become stiff and painful. After suffering from these symptoms, which increased for some weeks, he had to quit work for a week; he was then able to resume work, although for some months he was not entirely free from uncomfortable sensations in the legs and feet. Subsequently to this trouble he remained in good health until December, 1893, when, after working in a damp and cold place, he first felt numb and tingling sensations in his toes and in the anterior portion of the soles of the feet. In a few days these sensatons had spread all over the feet, and extended up the legs nearly to the knees. About this time his ankles seemed weak, so that he could not stand without some support. As he expressed it, he "rocked on his feet." Within two weeks from the time the numb and tingling sensations were first experienced in the feet he found his legs were paralyzed from the knees downward. About the time the legs were first paralyzed he felt a burning sensation in his hands, especially in the palms, a numbness in the fingers, and a week or ten days later his arms were paralyzed from the elbows downward.

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A few weeks after the paralysis became manifest he was troubled less from burning and numb sensations. From December, 1893, to March, 1894, he was treated for rheumatism. About the latter date a disagreeable tingling sensation, which later assumed a distressing burning character, appeared in the feet, and was worse at night and during cloudy and inclement weather. Similar sensory disturbances soon afterward manifested themselves in the hands, but to a less intense degree. He was admitted into the nervous wards of the Arapahoe County Hospital, August 11, 1894.

"*Examination.* He lies in bed with all the muscles below the knees completely paralyzed. Foot-drop is well marked, with extreme plantar contraction, and toes flexed, the great toe being flexed to the greatest possible degree. By using considerable force I am able to dorsally flex the feet at right angles with the legs. The legs lie straight at the knees, and he can flex and extend the legs at these joints, but the muscular power is slight. Flexion and extension at the hips are fairly good, but the muscles that make these movements are rather weak. Moving the legs and thigh at the knees and hips causes some pain, or a drawing sensation of the calf and posterior thigh-muscles. Extreme wasting has taken place in all the muscles below the knees, and to some extent in the thigh-muscles. The greatest amount of muscular atrophy is found in the interossei of the feet and in the anterior tibial and peroneal groups. The trunk-muscles are nearly normal. Wrist-drop is present, with flexor contraction of the muscles of the hands and wrists; both hands ordinarily lie in the wrist-drop position, yet with considerable effort he is able to extend the hands at the wrists on a line with the forearms, but he cannot extend them beyond this point. Marked atrophy is present in the muscles of the hands, most pronounced in the interossei and in those forming the thenar eminences. The muscles of the forearms are wasted, but to a much less degree than the muscles of the legs below the knees. The muscles of the upper arms are fairly strong, and present but slight wasting; the muscles of the shoulders appear normal; none of the muscles below the knees or elbows responds to the strongest faradic current from a large-sized Flemming battery. All these muscles show reaction of degeneration. The muscles of the neck, face, and larynx are not involved.

"*Sensory Phenomena.* Tactile sense when tested by the contact of a feather is lost on the feet and legs from a point about midway between the ankle-joints and the knee-joints downward; the sense of touch is present down to a point about six inches above the ankle-joints when the feather is in gentle motion; in the right hand and arm the feather in contact is not felt from a point four inches above the wrist-joint downward, and in the left from a point about four inches above the wrist-joint downward, while a feather in motion can be felt over the greater portion of the backs of the hands and wrists, but is not perceived on the dorsal surface of the fingers, the palmar surfaces of the fingers and hands, and the anterior surfaces of the wrists, and the anterior surfaces of the arms from a point about two inches above the wrist-joint downward. Tactile sense is present and nearly normal over all other portions of the body. Pain-sense is present throughout the body, but it is not normally acute in the areas of tactile anesthesia until the skin is pierced. Temperature-sense is lost all over the feet, delayed, uncertain, and lessened over the ankles, and in areas of tactile anesthesia of the legs, and much perverted over the hands, but not lost as in the feet. Localization-sense is greatly disturbed, especially over the feet, as a sensation produced on the leg is referred to the feet, and sometimes to the foot of the opposite side. Pressure-sense is disturbed more in the hands than in the feet. Joint-sense and posture-sense are present and about normal. Muscular sense is absent.

"The knee-jerks, the plantar, cremaster and forearm reflexes are absent; abdominal and iritic reflexes are present. Taste, smell, hearing, and vision are about normal. The internal and external ocular muscles and the opthalmoscopic examination show no abnormalities."

Now let us consider the characteristic symptoms of multiple neuritis; they are bilateral, usually symmetric, generally affect only the distal portions of the extremities, with an involvement of nearly all, if not all, of the nerves of the diseased parts.

Multiple neuritis is due to a poison that affects the nervous system through the circulation, and is in consequence always bilateral in typical cases. In uncomplicated cases the symptoms are symmetric, but various modifying conditions may disturb the symmetry. Alcoholism is a recognized cause of multiple neuritis, yet traumatism, rheumatism, or other local determining influences may destroy the symmetry of the disease by affecting certain nerves more than others. The influence of gout or rheumatism upon the system may cause the development of poisons which may give rise to multiple neuritis, but under these circumstances the well-known tendency of these diseases to affect one portion of the body more than another may destroy the symmetry of the symptoms. While in the vast majority of cases only the distal portions of the extremities are affected, yet the poison may be so active as to involve to a greater or less extent all the nerves of the body, those of the trunk as well as those of the limbs; but even in this case, the distal portions of the legs and arms suffer more than the other portions of the body.

It is probable that the nerves of the distal portions of the extremities are more affected than those of the proximal because the latter are better nourished than the former. It may not be correct to say that the disease is limited to the distal portions of the limbs, as a systemic poison expending itself on the nerves undoubtedly affects the nerves throughout their entire length, but the morbid process is only sufficiently intense to give rise to obtrusive symptoms in the parts in which the metabolic changes are the least active. Assuming this proposition to be correct, the changes in the parts most distant from the heart may be destructive, while those in the nerves nearest the body may be irritative. This would enable us to explain the variability of the deep reflexes, especially the knee-jerks, for we usually find them absent, but in some cases they are simply lessened, while in a few they are exaggerated. In rare cases there is weakness of the sphincters of the bladder and bowels, but in these the spinal cord or the brain is probably affected. While all the nerves of the affected parts are involved, some suffer more than others, such as the musculo-spiral and anterior tibial, nerves that supply the muscles that dor-

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sally flex the feet and extend the hands at the wrists; hence foot-drop and wrist-drop are commonly observed in typical cases of multiple neuritis.

The symptoms of the disease, for convenience of study, may be grouped under six headings: motor, sensory, trophic, ataxic, reflex, and electric changes. The motor symptoms are usually well marked, and consist in paresis or paralysis of the muscles below the knees and below the elbows, the dorsal flexors of the feet and extensors of the wrist and hand being most affected, with resulting wrist-drop and foot-drop. In some cases the muscles of the thighs and upper arms are decidedly weak, but rarely paralyzed, the extensors of these parts being more affected than the flexors.

The most marked sensory change is tactile anesthesia on the plantar and dorsal surfaces of the feet, often in the parts around the ankles, and sometimes on the legs to a point about midway between the ankles and knees, and between the wrists and elbows. In a few cases the anesthesia extends up as high as the knees and elbows, or even above these joints. The other general sensory phenomena in the areas of tactile anesthesia are usually perverted, the extent of the perversion varying in degree with the profoundness of the tactile anesthesia. In some cases pain-sense is increased, although tactile anesthesia seems to be complete. The nerves of the most affected parts are often sensitive to pressure. The plantar surfaces of the feet and the palms of the hands are not infrequently the seat of almost constant, severe, and distressing pain. In some cases the pain in these parts is only complained of at night, except on sudden changes of weather, when it may be very annoying both day and night. Tenderness of the muscles is sometimes greater than the tenderness in the nerves, and may persist long into the period of convalesence.

The trophic changes are observed in the muscles, joints, skin, nails, and hair. Microscopically the nerves always show changes of a trophic character. The extent of the trophic alterations depends upon the severity of the inflammation in the nerves. Trophic changes are most obvious in the muscles, which often waste to an extreme degree. Sometimes the affected parts become edematous and the joints are the seat of effusion.

Ataxia is often so pronounced in the legs of persons suffering from multiple neuritis, especially if the person is able to walk, as to suggest sclerosis of the posterior columns of the spinal cord, and not infrequently from this symptom alone the careless observer has mistaken a case of multiple neuritis for one of locomotor ataxia. The fingers and hands are often decidedly ataxic.

The knee-jerks are abolished in the vast majority of instances, but in exceptional cases they are lessened or exaggerated. I am not convinced that an irritative lesion of the nerves supplying the extensors of the thighs will explain the enormous increase of knee-jerks sometimes witnessed in these cases. It is probable that the knee-jerks may be increased by a heightened irritability of the muscles due to inflammation in the connective tissue of the muscles. The only superficial reflexes involved in the vast majority of cases are the plantar. They may be abolished, normal, or increased.

The electric changes in multiple neuritis are usually quite pronounced, and consist of lessened or abolished faradic response in muscles and nerves, failure of the nerve to respond to galvanism; at first increased muscular irritability to the galvanic current, with changes of the normal formula, so that the muscles will respond equally well or better to the positive as to the negative pole. Later the muscular irritability may lessen to the galvanic current or fail to respond to the negative pole except to a current so strong as to be unbearable to the patient.

In some cases of multiple neuritis the motor symptoms are well marked, while sensation is nearly normal and ataxia is scarcely appreciable; in others the sensory symptoms are pronounced and motor power well preserved; and in a third group ataxia is very decided, while sensation and motion seem to be but little impaired; so that we may have motor, sensory, or ataxic forms of multiple neuritis. I have never seen a case in which on careful examination one of these groups of symptoms was well pronounced and both of the others were entirely absent.

While in the vast majority of cases of multiple neuritis the arms and legs are affected, occasionally the poison seems to expend its influence on the nerves of the legs, the arms escaping, if not entirely, to such an extent that the most careful examination fails to reveal any objective symptoms. I am inclined to believe that multiple neuritis of the paraplegic type is much more common in alcoholic subjects than the recorded cases would lead us to infer. I have observed six cases of multiple neuritis of the paraplegic type; four of them have followed typhoid fever. I do not remember having seen multiple neuritis, unless we regard lead-paralysis as being of this nature, limited to the nerves of the hands and arms.

We will now return to the consideration of the cases that we were engaged in studying at the close of our last clinic. You may remember that by a process of diagnosis by exclusion we came to the conclusion that no nervous lesion, except multiple neuritis, would account for the symptoms. Let us review the cases separately, and see if a lesion of the nerves will account for the various symptoms.

The first case was in a young Swede who during convalescence from a prolonged attack of pneumonia, began to suffer from pains and tenderness in the legs below the knees. On examination all the symptoms, except the increase of the knee-jerks and the disease being limited to the legs, were typical of multiple neuritis. Further, all other lesions of the nervous system that would account for many, if not all, the symptoms could be excluded. Multiple neuritis following pneumonia usually occurs during the early part of the convalescence. In a case reported by Dr. Leech, in the *Medical Chronicle*, motor symptoms were well marked in the legs, but absent in the arms; sensory changes, although more pronounced in the legs, were quite distinct in the hands and forearms. In this case the knee-jerks were absent. The knee-jerks are occasionally present and exaggerated, especially in the alcoholic variety. In the *British Medical Journal* of February 18, 1893, Arthur Maude reports a case entitled "Exaggeration of the Tendon-Reflexes in Peripheral Neuritis, following Prolonged Alcoholic Indulgence," and in the same journal for February 25, 1893, D. B. Leech records two somewhat similar cases. I have seen two cases of alcoholic neuritis in which the knee-jerks were increased and in which the sensory and motor symptoms were entirely limited to the legs and feet. Of 90 cases of alcoholic neuritis analyzed in Ross

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and Bury's recent work on *Multiple Neuritis*, in 5 the knee-jerks were exaggerated or lively, in 1 they were normal, and in another they were exaggerated at first, and became lost with the progress of the disease. We must not forget that the knee-jerks are probably exaggerated in the very early stage of multiple neuritis. If the knee-jerks become much increased after an attack of diphtheria, it indicates that neuritis will follow.

In the second case of the series that we were engaged in studying last Saturday the nerve-lesion followed a severe and prolonged attack of typhoid fever. The symptoms of this case were paraplegic in character, and one knee-jerk was slight, the other being absent, as is usually the case in this disease. In most of the cases of neuritis that I have observed following typhoid fever the trouble has been confined to a single nerve of a limb or to certain nerves paralyzing groups of muscles and giving rise to irregular areas of anesthesia. The radial nerves in the arms and the musculocutaneous in the legs and sometimes the anterior tibial are those that suffer most frequently in typhoid fever. Individual nerve-inflammation following typhoid is so common as to lead one to suspect that injury by pressure may be a determining cause of the nerve-affection. There are, however, a number of cases of multiple neuritis developed during the convalescent stage of typhoid fever. They are rarely typical cases, but most of them, judging from my experience, are irregular in type, and the nerves of the legs suffer more than those of the arms. When we remember that multiple neuritis of typhoid fever is rarely symmetric it is easy to understand that the knee-jerks may be irregular. It is probable that the typhoid poison has much to do with the development, or the tendency to development, of multiple neuritis, but it is also probable that local causes, such as pressure or slight injuries to individual nerves have a greater influence in affecting some nerves than others.

Our third case was in a man of 87 years, who had suffered from no special disease from whose poison we could expect neuritis to arise; neither had he been addicted to alcohol. With the exception of the trouble being limited to the legs, his symptoms were almost typical of the sensory form of multiple neuritis, and there is no other nervous lesion by which we can account for the anesthesia. The poor nutrition at the time of his admission and the extreme degree of atheroma of all exposed arteries of the body were the only apparent causes of his trouble. After he had been in the hospital for some time his nutrition greatly improved, and is to-day quite good, but the nervous trouble has continued to increase. It is most likely that we have a senile or thrombotic multiple neuritis. A few years ago I had the opportunity of observing, in this hospital, for nearly two years, a typical case of thrombotic multiple neuritis. The patient suffered greatly from subjective sensory disturbance for a considerable time before areas of anesthesia developed, and motor weakness, and finally paralysis, with great wasting of the muscles, did not become manifest until about six months previous to death. Before the fatal end the feet became gangrenous (dry gangrene), and pressure-sores developed over the various portions of the legs and buttocks. A few weeks before death myelitis supervened, with contractures of the legs and involvement of the sphincters of the bladder and bowels. If I remember the history of the case correctly the arms were only slightly affected, and this did not occur until very late in the disease. The microscopic examination showed degeneration of the nerves of the legs, and great thickening of the walls of the arteries, even of the nutrient arteries of the nerves. In no place could a complete obliteration of the caliber of the nutrient arteries be demonstrated, although this condition probably existed. Gowers, in the last edition of his *Manual of Diseases of the Nervous System* calls attention to senile or thrombotic multiple neuritis. It is probable that this condition is much more common than has heretofore been supposed, and many of the cases of subjective sensory disturbance found in persons of advanced life, especially with degeneration of the arteries, may be due to a low form of multiple neuritis of thrombotic origin.

Of the 4 cases 1 was chronic alcoholic multiple neuritis, and was nearly typical in character until the receipt of the injury which gave rise to motor symptoms largely of a hemiplegic type. The case as seen by me, might easily have been mistaken, in the absence of a history, for one of hemiplegia due to a cerebral lesion. The only peculiarity that this case manifested as compared with the ordinary type of multiple neuritis, before the receipt of the injury, was the marked weakness in the muscles of the right hand out of proportion to the left. I did not see the man at this time, and cannot say whether this symptom was simply subjective, or whether it would have been manifest on testing the strength of the muscles of both hands. As the man had to do considerable writing it is probable that the muscles of the right hand and arm in their weakened condition soon tired, simulating a condition of pseudo-writer's cramp, for which I understand he was treated for a time. Had the muscles of the left hand been subjected to the same strain as those of the right it is probable that this hand would have been complained of also. After the injury a careful examination showed bilateral symptoms, especially of a sensory character. These were more marked in the legs than in the arms. While on one side of the body the strength was about half of normal, the leg and arm of the other side were almost completely paralyzed. This case serves to illustrate the condition to which I have called your attention, that we may have a systemic poison, such as alcohol, causing a symmetric multiple neuritis; but the intervention of a determining local cause may result in the affection of certain nerves to a greater extent than others, and thus destroy the symmetry of the symptoms. Multiple neuritis due to a systemic poison is usually a parenchymatous inflammation of the nerves, but when a local cause determines the inflammation the interstitial tissue may be affected, and the parenchyma becomes involved later. After a serious injury the neuritis is likely to be of a diffuse character, affecting both the parenchyma and the connective tissue of the nerves.

The course and duration of the disease vary according to whether the inflammation is acute, subacute, or chronic. In the acute variety the inflammation increases from four to six weeks, remains stationary from two to three weeks, when the morbid process begins to subside, convalescence extending over a period of several months. In the chronic form the duration may vary from one to several years, and in the subacute it extends over periods greater or less in length, intermediate between

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the acute and the chronic varieties. The diphtheric form, as a rule, runs the shortest course, convalescence in the majority of cases being pretty well established in a short time, so that the patient is able to walk about by the end of the second or third month from the time the neuritis began to be manifest. The alcoholic form is not infrequently slow in reaching its height. I have seen patients whose disease had been developing from one to two years before it reached its acme. Those forms which follow an acute disease usually run a course of from three to twelve months. It must be remembered that the muscular strength is not regained for several months after the patient is able to return to his duties. The parts that are first affected are usually the most seriously involved and the last to resume their normal condition. The legs usually improve before the hands and arms, but in alcoholic cases, as well as in many others, the order may be reversed. The feet, and sometimes the hands, especially around the nails, remain hyperesthetic long after the spontaneous pain has subsided. Relapses, to which the patient is always liable, greatly lengthen the course of the disease.

The vast majority of cases of multiple neuritis result in recovery. In a few cases the trunk-muscles, including the intercostals, become affected, and, if the diaphragm becomes paralyzed, death takes place from failure of respiration. These are acute and rapid cases which not infrequently end in death from six to ten days or two weeks. Cardiac failure in alcoholic or diphtheric cases sometimes causes sudden death, and, in a few, the patient is worn out by pain. In the thrombotic form gangrene takes place, bed-sores develop, bronchitis finally supervenes, and death is the result. It is probable that in those cases in which bed-sores develop the spinal cord is affected. In alcoholic cases, cardiac, renal, and hepatic complications may lend gravity to the prognosis. Mental failure is a common complication of alcoholic multiple neuritis, but it usually passes away during convalescence. Sometimes there is a simple failure of memory for recent events, but in the typical cases of the alcoholic form the patient becomes delusional and conceives the idea that he goes out each day and takes long walks, although he may be so completely paralyzed that he is unable to stand or even flex or extend the feet.

The treatment in the early stages consists of rest in bed, protecting the extremities from changes in temperature by means of flannels wrung out of hot water, warm daily baths, if they do not inconvenience the patient too much, keeping the bowels open, and giving a febrifuge when there is a rise of temperature. In all cases protecting the parts from sudden changes in temperature is important. So soon as the acute stage has subsided, massage and electricity, and the internal administration of strychnin, arsenic, quinin, and iron are indicated. The nutrition should be maintained throughout the course of the disease by means of good nutritious food, of which animal food should form a large proportion during convalescence; and codliver-oil may be added to the list of nutrients. Relapses may often be prevented by protecting the affected parts from sudden changes in the temperature by means of flannels worn next the skin. In the alcoholic variety especially, total abstinence from alcohol in every form should be insisted upon. Massage should not be resorted to while the muscles and nerves are sensitive, but gentle rubbing of the limbs from the distal portions toward the body is often grateful to the patient early in the disease. It is doubtful how much the galvanic current hastens the resolution of the morbid process in the nerves and muscles, but the nutrition of the latter may be partially maintained, and the extreme atrophy prevented, by causing gentle contractions of the paralyzed muscles until the patient regains voluntary control over them. When the muscles readily respond to the faradic current this may be used, but the current should be no stronger than is necessary to effect gentle contraction of the most affected muscles. In the majority of cases the faradic current will not induce muscular contraction of the extensors of the wrist, and of the anterior tibial and peroneal groups. If all the muscles will not respond to a slowly interrupted faradic current of moderate strength, the interrupted galvanic must be used, taking care not to exhaust the muscles by prolonging the seances to too great length, or by having too vigorous muscular contraction. From three to five minutes is long enough at first for each of the largest groups of muscles. Ordinarily the slight muscular contraction is less likely to do harm, and is capable of doing more good than vigorous movements. Electricity may be applied for this purpose daily or every alternate day. Massage may be employed daily, or in many cases, twice daily, if it is not done too vigorously. By timely and proper attention, troublesome contractures of the flexor muscles of the legs and arms, resulting in the deformity of the feet and hands, may be prevented. This may be done by keeping the feet at right angles to the legs by means of sand-bags placed at the soles of the feet, and by occasionally placing the forearms and hands on padded splints. The muscles that have a tendency to become contractured should be gently stretched each day.

## CLINICAL MEMORANDA.

### *THREE OPERATIONS FOR THE RELIEF OF TRAUMATIC EPILEPSY, TWO OF WHICH WERE COMPLICATED WITH INSANITY.*

BY JOHN D. DAVIS, A.B., M.D.,
OF ALLEGHENY CITY, PA.

THE subject of traumatic diseases of the head and brain is particularly important, and the study of both the immediate and remote results of injuries to this important organ is as interesting as it is inexhaustible. There can be no subject of greater interest to surgical science than that which treats of the restoration of a dead mind or the reestablishment of the functions of a dead part. The alterations in the brain-substance produced by injury may involve the intellectual, the sensory, or the motor areas, or impair all of them, the most frequent sequelæ being insanity, hyperesthesia, convulsions, or paralysis. The injury may not be sufficiently severe to interfere with the functions of the brain, but may only apply to the scalp or skull, and yet very distressing reflex influences may be the result at a more or less remote period.

It is the intention of this paper simply to call attention to the results of operative procedure in three cases, and

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if possible to point out the great relief that might be given to many who are now only objects of pity. With asepsis and antisepsis understood and practised as it is at the present time, the opening of the skull-cavity is attended with but little danger to life, and with the nerve-centers and brain-functions localized as they are, we should be able to do much good by judicious surgical interference in carefully selected cases. There are numberless cases of insanity, epilepsy, and other distressing nervous ailments due to traumatism that could be relieved and the subjects restored to usefulness who are now a burden to friends or dependent on charity. As I said before, in many instances the cause of the reflex phenomena is resident in the scalp or skull and no harm can result from a skilful attempt to remove the source of irritation. In many instances the moral effect of the operation would be beneficial.

CASE I. *Epileptiform convulsions.*—On November 1, 1892, I was consulted by Frederick K., aged 30 years, for epilepsy. His physique was indicative of a robust and healthy constitution. He was a farmer by occupation, born of healthy parents, both living, with no cases of insanity, idiocy, epilepsy, carcinoma, or tuberculosis known in his family or among his relatives. Ten years ago, while erecting a frame building, he fell a distance of 15 feet, striking the back of his head on one of the timbers. The scalp was not lacerated, nor did he consider himself much hurt; yet within an hour he was attacked with a severe convulsion lasting several minutes. From that date he had on an average two convulsions a day. Occasionally he would have intervals of relief for several days, and again have a number of convulsions in a few hours. He was seldom free from headache in the left occipital region and had continuous tinnitus aurium on that side. His intellectual and facial expression was that of an epileptic. He had been under the care of excellent physicians who had exhausted the *Pharmacopeia* in trying to give the man relief. I suggested opening the skull at the seat of injury and exploring for the cause of the trouble, to which suggestion he readily acquiesced. He was soon afterward placed in the Allegheny General Hospital, where all antiseptic precautions were observed, and on November 14, assisted by the late Dr. Joe Dickson and Dr. F. F. Myers, I removed a 1¼ in. button from the left occipital region midway between the external auditory meatus and the external occipital protuberance, cutting the upper margin of the groove of the lateral sinus. The membranes when exposed presented a healthy appearance, as did also the brain-tissue. There was no indication of a cyst or that the brain-substance had been in any way injured. With a dural separator I explored the inner surface of the skull and detected what might be termed an enostosis situated scarcely ⅜ in. from the trephine-opening in the direction of the parietal protuberance. It was small, but readily appreciable. With the rongeur forceps the bone was cut away in that direction. A very perceptible change in the density of the bone was noticed as we approached the enostosis, and when it was reached we found not only the enostosis soft and cheesy in consistency, but that the softening and degeneration had extended to the skull-bone itself. It cut more like dried cheese than bony tissue. After removing all this softened bone (about the size of a nickel) the wound was dressed antiseptically and the patient put to bed.

Convalescence was rapid and devoid of any unfavorable symptom. The temperature never reached 100°, nor the pulse-rate over 80 per minute. The result of the operation was most gratifying. The headache was relieved almost instantly. The tinnitus aurium ceased in a few days and up to the present time, now 2½ years after the operation, the patient has not had a convulsion. He has been engaged at manual labor all this time and has enjoyed perfect health.

CASE II. *Epileptiform convulsions complicated with insanity and paralysis.*—John H., aged 34 years, a restaurateur of Chicago, during the dedication of the World's Fair in October, 1892, received a blow with a chair on the right parietal bone. He was rendered unconscious for several hours. After regaining consciousness he suffered with paroxysmal headaches, but it was not until the following January, 1893, that his mind became so deranged that his friends found it necessary to relieve him of the care pertaining to his business. He was then taken to a sanitarium at Lake Geneva for treatment, but his malady progressed, and was augmented by attacks of epileptiform convulsions, which were of frequent occurrence and very severe. In February a gradual loss of power took place in the left arm, which progressed until paralysis of the arm, forearm, and hand was complete. Following this was a partial paralysis of the left leg and thigh, particularly marked in the anterior muscles.

In April, 1893, the man was removed to an insane-asylum, where he was confined until August 1. All this time the symptoms were growing worse. Early in August he was removed to the home of his parents in Allegheny City, Pa., and when I was called to see him, September 1, 1893, his condition was alarming. He was suffering from most excruciating headache confined to the right side of the head. The pain was so great as to elicit agonized cries, and the patient was with difficulty at times restrained from escaping to the street. His convulsions were frequent, as many as one and two occurring every hour. His appetite was destroyed and sleep was impossible, except when produced by heroic doses of morphin. His hallucination consisted principally of a fear of impending evil, loss of family, fortune, reputation, etc.

Medicaments had had a fair trial and failed; so the patient was placed in the Allegheny Hospital, and on September 5, 1893, assisted by Drs. Dickson and Myers, I removed a button 1½ in. in diameter from the right parietal bone over the junction of the upper and middle thirds of the fissure of Rolando. By means of the rongeur forceps this opening was enlarged in an upward and downward direction. There was a very perceptible bulging of the dura mater into the opening and the membrane itself was unusually adherent to the bone. Other than this there was no indication of injury or disease of the membrane. The dura was laid open by a crucial incision. There was an immediate escape of about two drams of thin pus, apparently the contents of a degenerated cyst, although there were no remains of a cyst-wall. The pus-cavity was washed out thoroughly with a weak solution of mercuric chlorid, the wound dressed antiseptically, and the patient put to bed. The immediate result of the operation was better than we anticipated. The headache was relieved, the convulsions ceased, and the mind was restored. This condi-

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tion continued and convalescence was uninterrupted until September 16, when I was suddenly called to his bedside and found that all the previous symptoms had returned. I removed the dressings, reopened the scalp-wound, which had united by first intention, and found a reaccumulation of pus. After removing all pyogenic substance and washing out the cavity most thoroughly, I introduced a double drainage-tube and dressed the head as before. A favorable condition was at once apparent; for a week the wound was washed out with a weak, lukewarm solution of mercuric chlorid by means of the double drainage-tube. A hernia cerebri was feared, but fortunately the wound closed without any such occurrence. In six weeks from the time of operation the patient was removed to his home, practically a well man, with the exception of the paralysis. Shortly after this he noticed a return of power in his left leg and arm. This improvement was slow but continuous, and now, almost two years from the date of the operation, he has perfect use of his left leg, and the power in the left arm, in which the paralysis was complete, is restored, with the exception of the deltoid muscle and extensors of the hand, these being yet slightly impaired. He is now filling a clerical position with one of the traction-roads of this city.

CASE III. *Epileptiform convulsions complicated with pronounced melancholia.*—On October 1, 1894, I was consulted by the parents of Miss Minnie E., a young lady of 22 years, who had enjoyed perfect health until the receipt of an injury sixteen months previously. While skating she fell upon the ice, striking the back of her head a violent blow, rendering her unconscious for three hours. When I saw her, her mental condition was such that her friends feared that she would destroy herself or do some violence to the other members of the family. She was very morose and irritable. Headache had been incessant for over a year and was increasing in violence. Pressure at the seat of injury increased the pain very considerably. She was having on an average two epileptiform convulsions daily; her appetite was much impaired; sleep was almost impossible; and there was marked loss of flesh. Her condition was rapidly growing worse, notwithstanding she had had the benefit of the services of the best physicians, with change of climate and surroundings.

The objective symptoms were very obscure and the treatment doubtful, but with the approval of her parents she was placed in the Allegheny General Hospital, and on October 15, 1894, with the assistance of Drs. Dickson and Myers, I trephined at the seat of injury, removing a 1¼ in. button over the middle third of the superior semicircular ridge on the right side of the occipital bone. The skull seemed perceptibly thickened, and bleeding was free from the entire cut surface. This congested condition was particularly marked and the oozing of blood continued for several hours. The dura showed no indication of disease or of having suffered any injury whatever. The intracranial pressure was very great, so much so indeed that the membranes bulged up, almost filling the trephine-opening, and were so tense that the pulsations of the brain were not perceptible to touch. A crucial incision was made in the dura and the surface of the brain examined and then a careful exploration was made in different directions by means of a hypodermic needle for a suspected cyst, but nothing abnormal was discovered. After satisfying ourselves that the marked intracranial pressure was not due to the presence of a cyst or tumor in that particular part of the brain, an attempt was made to approximate the flaps of the dura, but this was found to be impossible, as the brain-tissue bulged into the opening until it was on a level with the external surface of the skull. The wound was dressed antiseptically and a firm compress applied.

The information obtained from the operative procedure as to the source of nervous irritation was thus very small. The only cause apparently discovered was the congested condition and the seeming thickening of the skull or perhaps the abnormal intracranial pressure, and it would have been difficult at the time to have pronounced either pathologic. The young lady made a most satisfactory convalescence, the wound in the scalp uniting by first intention, the temperature never reaching 100° or the pulse-rate above 75 per minute. Our failure to discover at the time of operation any positive or distinct cause of the nervous phenomena did not lessen our gratification at the ultimate result. Three days after the operation the patient declared herself free from headache, and there has been no recurrence of it since. Her mental disturbance rapidly disappeared, and at the present time intellection is as bright and disposition as genial as before the injury. She has gained twenty pounds in weight and her general health is perfect. Up to this time, eight months after the operation, she has never had a convulsion. She is now in the training-school for nurses in the hospital in which she underwent the operation.

The result in this case may be attributed to the removal of the (apparent) causes we found, or to the moral effect produced upon the mind of the patient by the operation. But however it may explained, the fact is patent that the consummation desired, namely, the relief and restoration of the patient to health, was accomplished. I have for the purpose of brevity omitted the technic of the operation as well as a detailed history of the convalescence.

## A CASE OF HEADACHE DUE TO ADENOID GROWTHS.

BY HOWARD S. STRAIGHT, A.M., M.D.,
OF CLEVELAND, O.

IN October, 1894, a boy, aged 16 years, consulted me as to a headache from which he had suffered for 3 years. He was a healthy boy and had never been seriously sick. Nothing in his general condition accounted for his headache. His eyes caused him no trouble. He said that he had some catarrh in the nose, and wished to know whether there was any possible connection between the nasal trouble and the headache. His complaint as to his nasal catarrh was in no way unusual. For three years he had suffered severely from headache. As a rule, on rising his head would ache so much that he could not eat any breakfast, and often he would vomit. The headache would continue until about the middle of the forenoon, and then would gradually subside; by noon it would disappear. About once a week he would have a headache so severe that he would have to go to bed and remain for some hours. He had tried all kinds of medicines recommended without any permanent relief.

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An examination of his upper air-passages revealed adenoid growths. There was no other abnormal condition present. A removal of the adenoid growths was advised and no promise was made as to possible relief of the headaches by this operation. The growths were scraped out with a Gottstein curet after painting the soft palate and pharynx with a 20 per cent. solution of cocain. After removal of the adenoids the headaches ceased at once, and have never returned. A recent letter of inquiry as to his present condition was answered in accord with the foregoing statement.

Adenoid growths are mentioned in the literature of the subject as a possible cause of headache. The possibility of headache being due to this condition is not considered at any great length in ordinary treatises. Frænkel has discussed the subject at greater length than ordinary, but offers no explanation of the manner in which the growths in exceptional cases produce such a result. Such cases must be rare. This is the only one that has passed under my observation. There was nothing unusual either in the quantity of growths present or in their character. The boy had had the headaches for three years only. The adenoid growths had in all probability been present much longer, and were at one time even larger than when removed. Why they should have given rise to the headaches for three years only is a question. If at the time of the first occurrence of his headaches his general health had been depressed, one could understand why the adenoid growths should have given rise to a new train of symptoms. There was, however, no such history. It is always an interesting question why a local morbid condition, present it may have been for many years and giving rise to no trouble, should all at once become the cause of marked disturbances.

THE HICKOX.

## A CASE OF ENLARGED PROSTATE GLAND TREATED BY REMOVAL OF THE TESTICLES, DEATH.

BY JOHN B. ROBERTS, M.D.,
OF PHILADELPHIA.

A MAN, 86 years of age, had suffered at various times for a considerable period with attacks of retention of urine due to enlargement of the prostate gland. Catheterization for a few times usually relieved him; and subsequently he was able to empty his bladder without further treatment. It was not necessary for him to use a catheter between the attacks of retention. During September of this year he had an attack of retention for which he was repeatedly catheterized by Dr. J. C. Knipe, resident physician at the Jewish Hospital, who had the immediate charge of him. When I examined the prostate through the rectum I found that the lateral lobes were not very much enlarged; the hypertrophy was evidently in the so-called middle lobe. Catheterization was rather difficult, and attended with considerable bleeding. The patient was, however, catheterized two or three times a day, and given potassium acetate, ergot, and tonic remedies. His bladder was occasionally washed out with boric-acid solution. The difficulty of introducing the catheter led to our leaving an instrument in the bladder for several days, which gave him much relief. Finally, on October 16th, we removed both testicles, and left a soft-rubber catheter in the bladder to drain off the urine. At the end of two or three days the patient, who had continued to grow weaker, was troubled a good deal with nausea and vomiting, and the permanent catheter was withdrawn, lest it might be the source of retention. He was then catheterized at intervals, though with some difficulty. He died five days after the operation. The wounds were in good condition, as they had been kept sealed with iodoform and collodion. The dribbling of urine over the scrotum was not allowed to contaminate the wounds, as they were frequently washed and the collodion-dressing reapplied. The patient did not die from the effects of the operation, but from the urinary condition. I seriously contemplated making a suprapubic cystotomy instead of removing the testicles, but concluded to do the latter operation, as the patient's condition was fairly good, and it was possible to introduce a catheter through the urethra. I rather regret now that suprapubic cystotomy had not been done and the removal of the testicles delayed until the man's condition had somewhat improved.

# MEDICAL PROGRESS.

***Successful Removal of a Foreign Body Impacted for Forty-six Days in a Bronchus.***—MORGAN (*Lancet*, No. 3761, p. 769) has reported the case of a healthy girl, eight years and nine months old, in which three weeks before coming under observation, whilst sucking a plum-stone which she had previously cracked, a portion of the stone fell back, and, as was supposed, was swallowed. There was immediate complaint of pain in the neck, and a crust of bread was given for its relief. An attempt on the following day to dislodge the stone by inverting the patient was unsuccessful. Subsequently there was pain referred to the right side of the heart. Poultices were applied and constantly renewed, with a view to relieving the pain, and the child was kept in bed for three weeks, during which time she took very little food. She was unable to sit up, but slept well except when troubled by cough, which occurred in paroxysms both by day and by night. The nutrition was fairly well preserved. The left side of the chest was flattened, chiefly over the second and fifth ribs, and the movements of this side of the chest were deficient, the interspaces being sucked in during inspiration. Vocal fremitus was greatly diminished, especially below the level of the third rib. The apex-beat was felt in the fifth interspace, half an inch external to the nipple. The whole of the left side of the chest was dull upon percussion, except over the left of the sternum, and this dulness extended over the whole of the left lung posteriorly. The right side was hyperresonant. On auscultation some breath-sounds were heard under the left clavicle, but were lost about the third interspace, and some feeble breath-sounds were audible behind in the suprascapular region, below which, however, all was dull.

After due consideration it was decided to attempt the removal of the foreign body by operation. Accordingly, nine days after the accident, an incision was made in the median line from the cricoid cartilage down almost to the inter-clavicular notch. The trachea was exposed, and a scalpel passed through between the third and fourth rings from below upward, well below the level of the isthmus. No mucus escaped, but a

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small amount of blood that entered the opening was expelled. The patient was inverted, but the obstructing body was not released. A bent wire, with the looped extremity downward, was passed down the left bronchus, but without first discovering any obstacle to its further passage. A double-looped strand of silver wire was then passed, with the result that the object sought was distinctly felt. On each of several attempts muco-purulent secretion was brought away on the instrument, and a small quantity was expelled through the opening after each trial. On attempting to pass the little finger the child became distressed, the veins of the neck becoming distended and turgescent. The child was allowed to partially recover consciousness and the laryngeal reflex was then excited with a feather. The breathing became very spasmodic and violent, but without the effect of expelling the foreign body. A large oval tracheotomy-tube was tied in with tapes, and the incision drawn together above and below, but owing to some distress another tube had to be substituted. For several days there was a good deal of cough and moderate muco-purulent expectoration.

Fifteen days after the operation the child was again anesthetized and inverted; a feather was passed down the trachea, but no effect was produced upon the foreign body. A long probe, slightly bent, was then passed down the left bronchus, and a hard substance was distinctly felt at a distance of about five-and-one-half inches from the lower margin of the tracheotomy-wound. The wound was then held open by retractors, and a long pair of forceps, curved for the last inch of their length, was passed down the left bronchus, but the retractors had to be removed before the foreign body could be grasped and removed. This was found to be nearly half of an irregularly broken plum-stone, which had been impacted with its apex downward. The wound was covered with a guard wet with carbolic lotion, and closed without further complication.

***Splenopexis for Wandering Spleen.***—PLÜCKER (*Centralblatt für Chirurgie*, 1895, No. 40, p. 906) has reported the case of a woman, twenty-three years old, and married for five years, who had aborted twice, but had borne no living child. For three years there had been complaint of constant abdominal and pelvic pain. There was no vaginal discharge and no hemorrhage. On vaginal examination the uterus was discovered to be retroflexed and somewhat enlarged and fixed; the right ovary was normal and slightly movable, and the tube was not thickened; the left ovary could not be felt, but in its place was a fairly firm, smooth tumor, equal in size to two fists; this mass was movable and filled the true pelvis. Wandering kidney was excluded in the diagnosis. Wandering spleen was thought of, but from the physical signs and the clinical history a benignant tumor of the uterine appendages on the left side, with retroflexion of the uterus, was believed to exist. Upon opening the abdomen in the Trendelenburg posture the tumor was found to be the enlarged and movable spleen. As the diaphragm was unusually high and difficult of access, ventrofixation of the uterus was effected, and a second incision made in the midaxillary line from the costal arch to the crest of the ilium, and another at right angles to this at the level of the tenth rib and parallel with this. Both of these incisions were continued down to the peritoneum. The parietal peritoneum was detached with the hand from the fascia above and below, and an incision made in it just large enough to permit the smallest diameter of the spleen to pass. When this organ had been removed the opening was then closed, and the parietal peritoneum attached to the pedicle of the spleen. The latter was now placed in its usual situation, though outside of the peritoneal sac. It was attached by a ligature to the tenth rib, and below it a pocket was made by bringing together the adjacent fat and connective tissue, and a number of sutures were passed through the surface of the spleen itself. The wound was carefully closed, and the operation proved to be a success.

***Successful Removal of the Breech-pin of a Gun from the Orbit.***—WENYON (*British Medical Journal*, No. 1815, p. 907) has reported the case of a man, 31 years old, who was injured by the bursting of a gun. Coming under observation two months later, he presented a cicatrix on the right side of the nose, above which was a sinus, the orifice of which involved the inner canthus of the right eye, and extended downward and inward for about a centimeter. The sight of the right eye was entirely lost, and the anterior surface of the globe was so uniformly red that the cornea could hardly be distinguished from the surrounding conjunctiva. There was no perceptible enlargement or protrusion of the eyeball, and this did not appear to have sustained any mechanical injury or loss of tissue. The sinus gave exit to a continuous discharge of slightly putrid pus, and the patient complained of constant headache and occasional dizziness. The pain was referred to the right frontal and temporal regions, and the skin of this part of the head presented a slight blush, but there was no superficial tenderness. On the introduction of a probe the lower edge of a hard, metallic substance was detected at a depth of about one inch posteriorly from the orifice of the sinus. Several attempts to remove the foreign body through a slightly enlarged opening were unsuccessful. Accordingly, the incision was carried along the side of the nose to the nostril, laying open the right nasal cavity. The foreign body was then seized with a strong pair of forceps, and the complete breech-pin of a gun removed. It measured a little more than three inches in length, and weighed 2¾ ounces. It had evidently lain at the back of the orbit, inclined upward and slightly backward from the point of entrance, at an angle of about 45°. The symptoms disappeared with the removal of the body.

***Bilateral Gangrenous Stomatitis.***—MCDONALD (*Medical Herald*, vol. xiv, No. 10, p. 478) has reported the case of a girl, 3 years and 2 months old, who, in the course of an undetermined febrile affection, presented a sore mouth and picked out two of her teeth. In the course of a week the cheek had become swollen and was red and shining, and soon the other cheek became similarly affected. In the course of another week the affected parts of the lips and cheeks became blue and dark, and the discoloration spread on either side. Antiseptic lotions and powders seemed to cause a drying-up of the dead tissues, but failed to check the spread of the gangrene. The condition thus progressed for four or five

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weeks. The affected area included the cartilage of the nose, the upper and the lower lips, and three-fourths of each cheek. An offensive odor emanated from the child, whose body had become greatly emaciated. Respiration was accelerated, and coma set in and death ensued.

## THERAPEUTIC NOTES.

***Death from Potassium Permanganate.***—THOMSON (*St. Petersburger medicin. Wochenschr.*, 1895, No. 38, p. 329) has reported the case of a man, 22 years old, who was found upon the street with a partially emptied bottle of of potassium permanganate in his pocket, of the contents of which he had taken between four and five drams. Undissolved crystals of the salt were visible at the corners of the mouth. The face was pale and expressive of pain; the eyelids were half-closed; the mouth wide open; the lower lip and the protruding tongue swollen, black in appearance, and covered with dark crusts. Dark streaks passed from the angles of the mouth to the chin. Respiration was difficult, and attended with sounds of stenosis. The pulse was frequent and small. There was considerable muscular relaxation, and speech was almost impossible. An esophageal sound encountered obstruction at the level of the cricoid cartilage. In the course of the manipulations intense dyspnea suddenly manifested itself, for the relief of which tracheotomy became necessary. Upon the supposition that considerable quantities of potassium permanganate had gained entrance into the stomach, in conjunction with the failure to reach this viscus through the esophagus, and in anticipation of the subsequent necessity of feeding, gastrotomy was undertaken in order to effect lavage. The gastric contents responding to tests for potassium permanganate, the irrigation was repeated after an interval of four hours. Respiration, however, continued difficult; the pulse became rapid and feeble, and death occurred amid signs of cardiac paralysis. Upon postmortem examination the lips and the tongue were found edematous. The mucous membrane of the mouth, pharynx, and larynx was eroded. The trachea, the bronchi, and the esophagus were not attacked. The blood in the large vessels was diffluent and cherry-red in color. The heart was of normal size, and presented a number of petechiæ beneath the pericardium. The cardiac veins were distended, the arteries elastic and not dilated. The myocardium was flabby. The left ventricle contained a small amount of blood; the right rather more. The auricles were filled, but not distended. The lungs contained much blood. Blood from the heart and its afferent vessels, the urine, and a piece of the pectoralis major muscle of the left side failed to yield the reactions of potassium permanganate. The conclusion is reached that death did not result from intoxication, but from the corrosive action upon the upper respiratory and digestive tracts, resulting, in conjunction with the necessary operative procedures, in cardiac failure.

***Recovery from a Large Dose of Cocain.***—At a recent meeting of the Philadelphia County Medical Society, BALL reported the case of a woman, 35 years old, who swallowed with suicidal intent 6 drams of a 5 per cent. solution of cocain, representing 18 grains of cocain. The patient had for 10 years been a sufferer from stricture of the rectum, for the relief of which she was accustomed to apply cocain topically on a pledget of cotton. After the ingestion of the toxic dose dryness of the throat soon appeared, and on attempting to rise from her couch to summon aid the woman felt dizzy and fell to the floor. Raging delirium set in and the patient attempted to throw herself from a balcony to the ground. She talked loudly, incessantly, and incoherently. Physical restraint was necessary and the hypodermic administration of morphin was resisted, although a third of a grain was given by the mouth. The pupils became widely dilated, the pulse hardly perceptible and very frequent. The tongue was from time to time protruded spasmodically and the teeth were gritted together in a tetanoid manner. At one moment the patient was depressed, at another exalted. She frequently rubbed her hands, which she complained of looking dirty. The tongue was much congested and cyanotic and anesthetic. There was no appreciable anesthesia elsewhere. The administration of black coffee and lukewarm water was followed by free emesis. Two hours after the poison had been taken the patient was resting quietly, with the pulse stronger but still frequent. Thirst was extreme and motility greatly impaired. Emission of urine was secured, and strychnin, gr. $\frac{1}{30}$, and champagne were administered. Perspiration set in and pallor gave way to a slight glow. Four hours from the beginning the patient was sleeping soundly and the pulse had fallen to 100 and was much stronger. After a time consciousness returned, but there was no recollection of time and little of previous events. On the following day the patient was weak; her body felt bruised and her limbs heavy and useless. Feces and urine had been passed without difficulty. Appetite was impaired and thirst was still present. The tongue was no longer congested and sensibility had returned. The patient gave a history of having taken an overdose of cocain in the dry state on a previous occasion, when the delirium was acute and was overcome by the use of morphin in large doses.

***The Treatment of Diphtheria with the Antitoxin.***—HEUBNER (*Deutsche medicin. Wochenschr.*, 1895, No. 42, p. 687) reports the treatment of 117 cases of diphtheria with the antitoxin in addition to those previously reported, making a total of more than 300 cases. Among the 117 there were 12 deaths—10.2 per cent. There were 97 cases of pure diphtheria, with 10 deaths (10.3 per cent.); and 20 cases of complicated diphtheria, with 2 deaths (10 per cent.). Among 220 cases treated from May, 1894, there were 25 deaths—11.4 per cent. There were 174 cases of pure diphtheria, with 15 deaths (8.6 per cent.); and 46 cases of complicated diphtheria, with 10 deaths (21.7 per cent.). Among the 110 uncomplicated cases treated between the first and third days there were but 6 deaths (5.4 per cent.).

Official statistics show that the mortality from diphtheria in the cities of Berlin, Dresden, Leipsic, Munich, and Hamburg during the first half of 1895 was conspicuously lower, both absolutely and relatively, than during any year covered by the records, although the whole number of cases of the disease, in the city of Berlin for instance, was larger and the proportion of cases received into the hospitals was smaller.

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## MAGIC AND MEDICINE.

PROBABLY most of us would resent the suggestion that there is any further connection between the terms magic and medicine than the identity of their first letters, but, unfortunately for our pride, it goes much further. Historically considered, one is the lineal descendant of the other. The earliest physician was the priest, the shaman, the conjurer, who even to this day in certain tribes bears the suggestive name of "medicine-man," and the curing of diseases constituted no small part of his activities. Indeed, his priestly or magic functions really grew out of his medical ones, and represent a later stage of thought, wherein all misfortunes, bodily and elemental, are alike regarded as due to the activities of evil spirits. The earliest deities of the race were personified discomforts, and some present-day divinities even yet bear traces of this origin. Our magnificent system of modern medicine bears evident signs of its demonistic descent.

It may sound strange, especially in view of recent developments, to assert that not only medicine and religion, but also science and religion, have a common ancestry. Yet such is literally the fact. The primitive priest-physician is called into being for and principally concerned with the removal or relief of discomforts and misfortunes, both individual and racial. His function is alike to bring rain, to avert storms and floods, to secure abundant harvests, to guard against defeat in battle, and to allay fevers, to cure convulsions, to defend against the "evil eye." To aid him in one class of functions he appeals to and studies the only manifestly heavenly bodies visible to him, the stars, and from this blind beginning astronomy, with its descendants, physics, mathematics, and navigation, is born. Many, if not most, of the stars and planets bear to this day the names that were given to them when worshipped as deities and used in the construction of horoscopes and predictions.

To assist him in the individual class of his duties the priest-physician impresses into the service the neighboring plants, herbs, and saline earths, first probably from their offensive taste or symbolic color, and thus arose the beginnings of botany, of chemistry, and their descendant, biology. The names of not a few of our familiar plants, some of which have lost all connection with the materia medica, such as "fever-few," "liver-wort," "sorrel" ("sore-heal"), "bone-set," etc., bear witness to this genealogy.

As the tribe grew, and its institutions with it, these two fields of effort became gradually separated from each other and assigned to different individuals and classes, but they have always displayed a remarkable tendency to become united again, and even to this day have never become entirely separate and distinct. For instance, in the Middle Ages monks were almost the only professed physicians, and such non-clerical physicians as existed relied largely upon charms, exorcisms, entrails, magic salves, and "spiritual" agencies generally in their practice.

In the brightest days of the most brilliant civilization that the world has ever seen the descendants of Esculapius formed a regular priestly caste and offered sacrifices, and these are merely a few of thousands of instances that might be cited to prove the connection between the two professions. Even in the nineteenth century the relation still lingers in the not infrequent claim to the power of healing disease under certain circumstances, yet made by some clergymen of almost every church and creed. As an historic fact it is supported by a simply overwhelming array of authorities from Humboldt and Tyler to Spencer and Draper.

And even if all these matters of record were

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swept away and forgotten the medicine of the earlier part of this very century, the domestic medicine of to-day, which is simply the professional therapeutics of a few generations before, nay even our most modern practice itself, bears scattered but unmistakable marks of their actual genesis.

That a considerable part of domestic medicine is evidently of demoniacal origin—in more senses than one—few will care to deny. The striking prominence among "household-remedies" of horribly bitter and nauseous "yarb teas," of cherry-bark, of quassia, of asafetida, the recommendation of such remedies as a roasted mouse eaten whole, snake-broth, drinking urine, hot blood, etc., etc., the confidence imposed in violent purgatives and emetics, are obvious survivals of the magician's principle of administering nauseous messes of every description in the hope of disgusting and driving out the evil spirit that causes the disease. Their whole medicinal value lies in their offensiveness. Such common practices as the charming away of warts, the wearing of iron rings, and the carrying of potatoes or chestnuts in the pocket to "draw out" rheumatism, are also of unmistakable character, and dozens of others might be mentioned.

But it was in the professional practice of fifty or seventy-five years ago that these survivals most abounded. The extraordinary prevalence of bleeding, for instance, was an almost pure relic of barbarism. Although useful under certain circumstances, and most gravely and learnedly defended on far other grounds both at that time and since, its senseless, indiscriminate use was a plain remnant of the shaman idea that there is in the system some spiritual or material *materies morbi* which must be got rid of by the most vigorous means in our power short of actually endangering the patient's life. And, perhaps, our sturdy phlebotomist-ancestors did not always stop short of this danger-line. The universal practice of systematically starving or "reducing" all "sthenic" forms of disease was originally based upon the same idea, although far different and more plausible grounds were avowed for its continuance.

It was scarcely a generation ago that GRAVES thought it worth while to order carved on his tombstone, "He fed fevers," and we are more than inclined to suspect that the undue prominence of gruels, beef-teas, soups, and "slops" of every description in the sick-room dietary of to-day is a belated survival of or reaction from the same "demon-starving" theory of medicine. The remarkable manner and heroic doses in which calomel and other violent purgatives, tartar emetic, lobelia, and veratrum were administered in season and out of season, were also obvious survivals of a similar idea. A most significant fact in this connection is that almost every one of these once-vaunted methods and drugs has fallen into disuse, if not disgrace, as the shadow of the superstitions that gave them birth have been dispelled. The only exception of note is calomel, which, however, is used to-day in far other doses and for almost totally different purposes.

But surely there are no such traces of lowly origin to be found upon the bright escutcheon of that queen of the arts and sciences, modern medicine. Take up a prescription-blank and say whose image and superscription that is in its upper left-hand corner. On recent blanks it is ingeniously twisted into a rude letter "R," with a stroke across its last flourish, and we teach the wondering tyro that it is a contraction of "*Recipe*," "take." But turn to a blank of twenty years ago or a German or English blank of to-day and it appears as a character widely different from any known letter of the alphabet, and a little further investigation reveals it as nothing more nor less than the zodiacal sign of the god Jupiter, whose blessing is thus invoked upon the succeeding formula—which often needs it badly enough.

This, of course, is a mere fossil imprint upon our escutcheon, of much historic significance, but exercising no influence upon our present thought. But are there no genetic traces that are still alive and actually affect our conceptions of disease and its cure? Take, for instance, that extraordinary and mysterious disease hydrophobia, of which we hear so much and see so extremely little, and which several competent authorities, who have made for years a special study of collecting and analyzing all reported cases of it, declare is largely made up of either tetanus or hysteria, most commonly the latter. The picture at least of this horrifying disease is an evident and striking survival and copy of the old Norse legend of the "were-wulf" and its madness-producing bite. This is also shown by the fact of its being popularly and even semi-professionally believed to be most prevalent during the "dog-days" or months in which the "dog-star," Sirius, is in the ascendant. The "muzzling-ordinances" that our "city fathers" are annually delivered of

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in July and August are actually still based on this idea. We cover its nakedness nowadays by the declaration that hot weather predisposes to the disease, in spite of the fact that it is almost unknown in the tropics and can be shown by statistics to be completely independent of the temperature, occurring in even Iceland and Greenland. In fact, it would hardly be too much to say that the geographic distribution of hydrophobia is closely dependent upon that of the "were-wulf" legend.

Has the tendency to regard mere bitterness or distastefulness as a medicinal property entirely died out? Have we not yet in our materia medica a class of "simple bitters," drugs of whose physiologic effects we know absolutely nothing except that they taste bitter and are traditionally reported to have an improving effect upon the appetite? What claim have quassia, gentian, calumba, etc., to a place among our remedies except their abominable taste?

There is another therapeutic belief that is a positively beautiful case of survival still in full force among us. And that is the mineral-water fad. Our favorite prescription for lithemia, for rheumatism, for dyspepsia is, as it was a hundred years ago, "a course of the waters" of some spring, either at first hand or in bottles. The shelves and the cellars of our drug-stores, our restaurants, our bars, nay even of our groceries and residences, are fairly loaded with green bottles labelled "Hathorn," "Carlsbad," "Apollinaris," "Hunyadi," etc. Their wonderful virtues—and still more wonderful formulas—are spread upon the advertising pages of all our journals, and there is no scarcity of medical names to back up their pretensions. They differ widely in their chemic composition, but all are beneficial in all sorts of troubles. This leads one to suspect that their most potent remedial principle is that possessed by them all in common—$H_2O$. Indeed, most of the benefit derived from their use is now attributed by thoughtful observers to their "flushing" effects, and it is significant in this connection that the one water which has by far the largest sale contains simply pure water and enough carbon dioxid to give it sparkle and "snap." Originally it was "the sparkle" which was regarded as the most important part, for, strange as it may seem, the belief in mineral waters can be traced directly to the superstition that springs that bubbled or seethed or spouted were literally inhabited by spirits that caused the ebullition. The "troubling of the waters" in the healing pool of Bethesda, as related in the Gospels, is a familiar illustration. Hence their wonderful potency as remedies, and especially if they were either hot or sulphurous, which proved them to come directly from the nether world.

But probably the most vigorous and striking survival of the demon-theory of disease is our irrepressible tendency to regard disease as a distinct entity of some sort which is to be "treated" or "driven out." We speak of "disease-processes" as if they were something entirely new and foreign to the tissues, instead of mere health-processes gone wrong, life out of place. The mental habit of far too many of us is simply to determine the nature or often merely the name of the disease and then apply the remedies indicated in that disorder. We are still longing for "cures" and "specifics," for antidotes and abortions.

Not a little of the wonderful vogue attained by the germ-theory of disease is due to the high degree in which it gratifies this tendency. It serves to embody or personify disease as it were, and gives us something definite and separate to attack. In early days a demon was the explanation for everything. Now it is a germ.

## EDITORIAL COMMENTS.

*The Coroner as a Pathologist.*—We believe the coroner's office is intended for the investigation of deaths from doubtful causes. Of course, in the vast majority of instances, death is the result of disease, and a physician's certificate is given. But whenever a human life is ended by suicide or accident, by inadvertence or carelessness, or under circumstances giving rise to suspicions of foul play, the coroner holds an inquest—makes a preliminary inquiry—to ascertain where the responsibility lies. And if in the opinion of his jury the loss of life has been due to fault on the part of anyone, that person may be held for the further action of the proper court.

Here, however, it seems to us that the coroner's duty ends. Should two physicians be at variance as to the question whether in a given case the certificate should read "typhoid fever" or "diabetes," we think it would be absurd to ask that the point should be decided in the coroner's office.

But the Coroner of Philadelphia has shown himself to have a higher view of his functions. He is ready to tackle pathologic problems; to assume authority in matters pertaining to this science. Some time ago he announced that in his opinion there was no such thing as heart-failure, and that he should decline to receive any statement from physicians giving this as the cause of sudden death.

A few days ago, a child died with symptoms suggesting hydrophobia, it having been bitten by a dog

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some four or five days previously. According to the daily papers "it has always been the custom of the coroner's officials to ignore the existence of hydrophobia, maintaining that the deaths credited to that cause are always from convulsions. . . . In the case of the Jones child, Deputy Coroner Dugan determined to set the matter at rest once for all, and so a live rabbit was inoculated with virus from the supposed hydrophobic victim." As the rabbit did not die, he stated that the child had not had hydrophobia, and that there was no such disease. He ordered that the cause of death should be recorded as "convulsions."

Now this pathologist is perfectly satisfied with a certificate stating that a patient died of "dropsy," whereas every physician knows that dropsy is a mere symptom, and that no one ever dies of it. It would be about as explanatory to ascribe death to "pallor." We are aware that there have been doubts expressed by members of our profession as to the existence of such a disease as hydrophobia; but they have not yet found advocates of such authority as to outweigh the opinions of Pasteur, or to set aside the practice instituted by him.

When the Coroner and his jury have investigated a case and have decided that death was the result of natural causes, we have no objection to make, although we do not think that they represent the highest type of intellectual or scientific development. They have merely declared that they see no evidence of suicide or of fault on the part of some person other than the victim. But when the Coroner undertakes to offer the medical profession instruction in pathology and diagnosis—to tell them what they are to see or not to see in dealing with disease—we cannot recognize his authority. He may or may not believe that the stoppage of a weak heart is the only assignable cause of death in any case; he may hold what views he will as to the true nature of the disorder known as hydrophobia, but he has neither the capacity nor the right to dictate to the physician with regard to things which belong altogether within the latter's province.

There are communities which are well ordered and prosperous, in which the public welfare is maintained and the medical profession stands high, without any coroner at all. There are intelligent people who consider his existence as a relic of barbarism. Perhaps they are right.

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***Concerning Schlatter.***—As we are likely to hear more of Schlatter and similar persons in the future, we think it well to copy from the private letter of an Eastern physician the following portions telling of a visit paid the "healer" last week in Denver:

He stands in the front yard of an unpretentious house in one of the city's suburbs; a common board-fence separates him from the people. They come in single file, kept so by a railing extending about a hundred feet along the fence. The line at this time of my visit (2 P.M.) was nearly two squares long. Some were standing, some sitting upon rude benches, and some upon their own camp-stools. It is said that people come as early as 2 o'clock in the morning. He has been seeing over a thousand a day for weeks past. They come from all classes. They are not, in the main, a religious-looking crowd. Few seemed to me to have the semblace of a religious attitude. Indeed, it is stated that but few of the professed cures are professing Christians. The crowd of sight-seers outside of the line are well-behaved. At no time is there any hilarity. Indeed, the aspect of this aggregation is sober. No policemen are ever needed.

The "healer" is a tall, heavily built man. His features are large and show strength rather than refinement and intellect. His hands are large and strong, and from the size of his shoes I should suppose he would have difficulty in finding a pair to fit him in an ordinary shoe-store. His long hair, parted in the middle and combed roughly back, falls upon his shoulders. It is straight, coarse, and black, mixed with gray. His moustache and whiskers are somewhat curly and of the same color. His nose is somewhat flattened and twisted, as though from an injury. His brow is broad and of considerable height. What attracts one the most is his small, deeply set, restless, bright-blue eyes. His whole form speaks of an earnest, patient continuance in what he conceives to be well-doing.

As a subject approaches him, in turn, he grasps his right hand firmly (sometimes with severe pressure), and, if the subject has brought handkerchiefs with him to be "blessed," he squeezes them in his left hand, often pressing them hard down upon the upper board of the fence. He rarely looks at the subject after taking his hand, his eyes wandering restlessly and seemingly aimlessly about, mostly in a horizontal plane above the subject's head. His brows contract and his lips move slowly, but no words are audible. He gives about 25 seconds to each one, after which he releases his hand, gives him his handkerchief or other article he has "blessed," and indistinctly mutters some word which sounded to me like "tonk" (I was but 5 feet away from and directly in front of him). A friend by my side thought he meant to say "next," but he never looked in the direction of the next, and spoke too indistinctly to be understood by him. Once he took a cripple's both hands in his, while a rather frivolous young man with a weak profile, the antipodes of the healer, but who seemed to be his only assistant inside the fence, toyed with the cripple's cane, testing its iron point in the hard earth, etc. The cane was returned to the man with a bundle of handkerchiefs which had been blessed, and the aforesaid officious young man told him to "lay them on the sore parts," and that washing would not destroy the virtue in them. Once a crippled old man got near to the healer without being in line, and unobserved by the stripling-assistant; the healer attended to him without seeming to notice the break in the rule or to care for it. He goes on with his work, as it were, automatically. He receives no money nor appears to think about it. I saw no money offered during my time of observation.

He wore a rather short coat, likely given him by some friends to replace the common blouse he had been wearing through rain and even snow. He seemed to be honest in his efforts to do good, and not to be seeking for fame. He recognizes no subject, makes no discrimination, asks no questions; indeed, keeps at his work like a man driven to do so by some power beyond his disobeying. If a mother brings a child he takes its hand, does not even scan it to see what its deformity may be, but goes through the 25 seconds of moving lips, restless wandering eyes, and contracted brows, and then drops it, and reaches for its mother's hand and goes through the same process without ascertaining whether she is an invalid or not. Occasionly he yawns, rubs his head or lifts his feet to shift his position, all of which he does in such a manner as not to let the people feel that he is tired. In none of his actions does he seem to bid for even the sympathy of the people. He keeps at his task, slighting no one, never hurrying to get through, never looking along the line to see how many remain to be treated.

When the people pass from him they generally look subdued, sometimes affected to tears.

I saw no marvellous cures on the spot. One woman insisted that her imbecile boy walked better. Many patients say they have been benefited, but rarely show real evidence of it.

To sum up: Evidently this man is possessed with a form of religious monomania. He is doing what his impaired mind tells him is his duty, regardless of his own comfort, and even at the risk of his life. What cures there are come from the mental impression he is able to make upon his subjects.

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He is harmless, not a fanatic. He does not present an array of canes, crutches, or other make-believe evidences of his healing-powers. He makes no show at all of healing-power. He simply stands long, weary hours, patiently going through his simple form for all who may come to him. Physically he shows no signs of breaking-down, and as his reputation is on the increase it is probable that many of the halt and maimed and blind will have the opportunity of seeing what he can do for them.

I went away feeling a deep sense of pity for the poor man whose unbalanced mind compels him to undergo such hardships, and I hope that by some means the proper authorities will be enabled to take him in charge and properly care for him. I did not feel the same pity for the people.

***Physicians as Poets.***—It is always pleasing to find a largeness of mind and sympathy for other things than those that pertain to one's special department of work, and it is particularly so when we find physicians with creative power in the department of general literature. We are all proud of our Holmes's, Doyle's, Weir Mitchell's, and the rest, and are glad by them to illustrate to the world the truth that medicine is no narrowing and belittling sphere of human activity. We are pleased to bring a new proof of this before the profession in the fact of a recent volume of fine verse by a well-known and highly respected physician of Philadelphia, Dr. Edward W. Watson. *To-day and Yesterday* presents, we are sure, a wider range of theme, a broader interest in the great tragedy of human life, a keener perception of and sympathy with the struggle between science, faith, and ethics, than any other first volume of poetry known to us. Here is no piping falsetto or monotone, but a voice with rich and varied range, singing the ever-varying song of humanity's suffering and joy, love and life.

***A New Method of Advertising*** is fast growing in fashion —and it is reprehensible. It consists in the making of cut-and-dried abstracts of their articles, lectures, clinics, etc., by physicians themselves, who then send them to many journals. It is hoped that at least only medical journals are thus supplied. But even if only to them the practice can hardly be excused, because editors should be capable both of choosing articles to epitomize and of making their own abstracts.

## REVIEWS.

MEDICAL DIAGNOSIS, WITH SPECIAL REFERENCE TO PRACTICAL MEDICINE. A Guide to the Knowledge and Discrimination of Diseases. By J. M. DA COSTA, M.D., LL.D., President of the College of Physicians of Philadelphia; Emeritus Professor of Practice of Medicine and of Clinical Medicine at the Jefferson Medical College, Philadelphia; Physician to the Pennsylvania Hospital, etc. Illustrated with engravings on wood. Eighth edition, revised. 8vo, pp. 1104. Philadelphia: J. B. Lippincott Co., 1895.

DA COSTA'S *Diagnosis* has already a secure place among the classics of medical literature. A new edition, a revision, of such a book affects, therefore, but little the body of the work, which, at most, requires here a little trimming, there a little addition, by reason of the clearing up of matters previously doubtful, and enlargement of view due to increasing knowledge. The descriptions of diseases and their differentiation as contained in this volume may well serve as models of clearness and completeness, and though time may alter our views as to etiology and pathology, not to speak of prognosis and treatment, the clinical pictures so admirably executed will retain a permanent place in the galleries of medical art. The present revision has been extensive and, in some respects, radical. Additions have been made where it was necessary to bring the work into line with the present advanced position of clinical medicine, and a certain amount of matter that has been left behind in the march of events has been replaced by newer and better. The book is thus increased in size nearly one-hundred pages, and the text is illuminated by an added number of well-executed illustrations, a number of which are colored. A judicious position of conservatism has been taken with regard to the newer pathology born of modern bacteriologic investigation, accepting that which has been proved and assuming a waiting and receptive attitude toward that of which the proof is in varying degree yet incomplete. In addition to the Russian translation of the work there exists also an Italian, and a third edition of the German translation is in course of preparation. Despite the many good books that have appeared during the thirty-one years' existence of this one, Da Costa's *Diagnosis* easily remains the best of the kind extant.

A SYSTEM OF SURGERY. By CHARLES B. BALL, M.D., T.C.D., ARTHUR E. BARKER, F.R.C.S., WILLIAM H. BENNETT, F.R.C.S., ANTHONY A. BOWLBY, F.R.C.S., STANLEY BOYD, M.B. Lond., W. WATSON CHEYNE, F.R.C.S., W. BRUCE CLARKE, M.B. Oxon., H. H. CLUTTON, M.B. Cantab., H. PERCY DEAN, M.S. Lond., ANDREW DUNCAN, B.S. Lond., A. PEARCE GOULD, M.S. Lond., FREDERIC W. HEWITT, M.D. Cantab., JONATHAN HUTCHINSON, JR., F.R.C.S., W. ARBUTHNOT LANE, M.S. Lond., C. B. LOCKWOOD, F.R.C.S., G. H. MAKINS, F.R.C.S., J. H. MORGAN, F.R.C.S., HENRY MORRIS, M.B. Lond., HERBERT W. PAGE, M.C. Cantab., BERNARD PITTS, M.C. Cantab., A. MARMADUKE SHEILD, M.B. Cantab., J. BLAND SUTTON, F.R.C.S., FREDERICK TREVES, F.R.C.S., HERBERT F. WATERHOUSE, F.R.C.S., G. SIMS WOODHEAD, M.D. Edin. Edited by FREDERICK TREVES, F.R.C.S., Surgeon to and Lecturer on Surgery at the London Hospital; Examiner in Surgery at the University of Cambridge. Vol. I. With two colored plates and 463 illustrations. 8vo, pp. 1152. Philadelphia: Lea Brothers & Co., 1895.

WE have here the first volume of a work projected on somewhat the same plan as Holmes' great *System of Surgery*, the third and last English edition of which appeared only twelve years since. Yet in this brief space of time there has been so great a change in surgical theories and methods that even that monument of profound learning, studious research, and practical knowledge cannot now be regarded as setting forth the existing state of the science and art of surgery.

Mr. Treves says in his preface that there has been no attempt on the part of himself and coadjutors to produce a cyclopedia, but that they have sought in every way to make their work useful to the student and prac-

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titioner of surgery. He does not propose to dwell upon the actual details of operative procedures, but to set forth the pathology, clinical manifestations, and treatment of the various diseases and injuries that come within the scope of surgery. He further states that there has been no effort to secure an ideal uniformity of opinion, in cases in which the same subject or part of a subject happens to be dealt with by more than one writer holding differing views with regard to it.

Sixteen of the twenty-five authors have taken part in the preparation of this volume.

The opening article is by Mr. Woodhead, on the general subject of Surgical Bacteriology; it is a remarkably clear exposition of the present state of that most important science. Of course this matter figures frequently in the subsequent chapters. Inflammation, Suppuration, Ulceration, Gangrene, Syncope and Shock, Wounds, and Contusions are discussed by Mr. Cheyne; Erysipelas, Pyemia, Tetanus and Tetany, Burns and Scalds, by Mr. Lockwood.

A very brief article by Surgeon-Major Duncan on Military Surgery is devoted almost wholly to gunshot-wounds. The subject is treated in general terms. We believe that many surgeons in civil life have a wider and more familiar acquaintance with injuries of this kind than army medical officers have. The author makes no reference to the recorded experience of our late Civil War.

Mr. Treves himself contrib utes papers on the influence of Constitutional Conditions on Injuries, as well as on Tuberculosis, Hemophilia, and Hysteria.

On the subject of Anesthesia Mr. Hewitt writes ably, but altogether from a London standpoint. We cannot think the complicated inhalers so commonly employed by British surgeons have any advantage over the simple napkin. And we believe the true inwardness of the whole matter is better understood from careful clinical observations than from experiments in the laboratory.

Surgical Diseases due to Microbic Infection and to Parasites are discussed by Mr. Makins, who later writes on Rickets also.

Syphilis (including chancroid), Gonorrhea, and Diseases of the Skin have been assigned Mr. Jonathan Hutchinson, Jr.

A very interesting article on Tumors and a special essay on Diseases of the Jaws have been contributed by Mr. Sutton.

The remainder of the work is devoted to the consideration of diseases and injuries to the several systems: those of the Bloodvessels, including Aneurysm, by Mr. Gould; of the Lymphatics, by Mr. Morgan; of the Nerves, by Mr. Bowlby; of the Bones, by Mr. Boyd and Mr. Clutton; and of the Joints, including Dislocations, by Mr. Sheild and Mr. Barker.

We regret that our limited space forbids a more extended analysis of the articles enumerated. They embody the prevailing principles of the great British school of surgery, set forth by some of its ablest living representatives. Very little reference is made to Continental authorities, hardly any at all to the writings of our own countrymen. A striking feature of the work is the marked spirit of conservatism which pervades its pages. We find no hint in the present volume as to the proposed number of its successors, or the arrangement of the material to be contained in them. But we predict that the completed work will be recognized as a very important addition to surgical literature.

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INDEX-CATALOGUE OF THE LIBRARY OF THE SURGEON-GENERAL'S OFFICE, UNITED STATES ARMY. AUTHORS AND SUBJECTS. Vol. XVI, W-ZYTHUS. Washington: Government Printing Office, 1895.

ALPHABETICAL LIST OF ABREVIATIONS OF TITLES OF MEDICAL PERIODICALS EMPLOYED IN THE INDEX-CATALOGUE OF THE LIBRARY OF THE SURGEON-GENERAL'S OFFICE, UNITED STATES ARMY. Vol. I to Vol. XVI, inclusive. Washington: Government Printing Office, 1895.

THESE, the concluding volumes of this splendid work, constitute the capping-stone of a noble monument of enterprise and industry, which does credit alike to the Surgeon-General's Office of the U. S. Army, to its collaborators, principal among whom stands Dr. John S. Billings, and to the American medical profession. In it are contained 12,759 author-titles, representing 4857 volumes and 11,613 pamphlets; besides 8312 sub-titles of separate books and pamphlets, and 13,280 of articles and periodicals. The announcement is made that the manuscript of a second series, including all the titles of books and articles received too late for insertion in the series just ended, has been prepared, and will probably make five printed volumes of the same size and style as those constituting the first series. The appropriation for the first volume of the second series has already been granted by Congress, and the manuscript for the first volume is nearly ready for the press. It is interesting to note that the total 16 volumes of the *Index-Catalogue* contain of author-titles 413,531: 176,364 titles, 85,663 volumes, 151,504 pamphlets; and of sub-titles 679,669: 168,557 book-titles, 511,112 sub-titles; and portraits 4335. Dr. Billings concludes as follows in the letter accompanying his presentation of the 16th volume to the Surgeon-General: "This is probably the last volume of the *Index-Catalogue* which will be issued under my personal supervision, and, in closing the work, I can only say that it has been to me a 'labor of love,' and that I am very thankful that I have been allowed to complete it, so far as the first series is concerned." The medical profession certainly owes Dr. Billings and his collaborators a profound debt of gratitude for this splendid piece of work.

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EXERCISE AND FOOD FOR PULMONARY INVALIDS. By CHARLES DENISON, A.M., M.D., Professor of Diseases of the Chest and of Climatology, University of Denver; Ex-President American Climatological Association. Denver: The Chain & Hardy Co., 1895.

"PULMONARY invalid" can hardly be considered a term to delight the lexicographer, but it is not much worse than the French *poitrinaire*. The author's pathology is not accurate, but his therapeutic aim, the invigoration of the patient, is the true one. On the whole, his advice as to food and exercise is sound, but like many modern writers he seems to think that the science of medicine began yesterday, and while his own work is creditable enough he either neglects to acknowledge his indebtedness to those who have suggested it or carelessly makes acknowledgment to the wrong person.

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Thus he seems not to know that what he calls the "Howe tube" is the device of Ramadge, though this information is readily accessible, not only in Ramadge's own works, which are perhaps too ancient to be referred to in these progressive times, but in a very recent encyclopedic article. The "manometer" described as the author's device is a useful instrument, and ought to be generally employed, but it should be credited to Waldenburg, who devised and described it twenty years ago under the name of "pneumatometer." In this country Elsberg and others have written of it, giving proper credit to Waldenburg. The author's "Inhaler and Exhaler" is a useful modification of the instrument of an American observer, described some years ago as "Pneumatic Resistance-Valves." His "Emphysema-Jacket" is ingenious, largely original, and seems to be good in theory. We should be glad to know more of its practical utility. The benefits of inhalations of compressed air and of exhalations into rarefied air should be, but are not, mentioned. The author's diet-lists are useful and the brochure as a whole should do good.

PHYSICAL AND NATURAL THERAPEUTICS; THE REMEDIAL USES OF ATMOSPHERIC PRESSURE, CLIMATE, HEAT AND COLD, HYDROTHERAPEUTIC MEASURES, MINERAL WATERS, AND ELECTRICITY. By GEORGE HAYEM, M.D., Professor of Clinical Medicine in the Faculty of Medicine of Paris. Edited by HOBART AMORY HARE, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. With 113 illustrations. Philadelphia: Lea Brothers & Co., 1895.

THIS is a work of 419 pages, 200 of which are given over to the consideration of electricity. Climate, mineral waters, thermic agents, and atmospheric pressure are some of the other physical and natural agents treated of. The various European climatic resorts are described at length, and in a separate chapter the editor briefly mentions the more important American resorts.

The chapter on Hydrotherapeutics is short and fails to mention the use of lavage for stomach-diseases or the cold bath in pneumonia; the Brand method in typhoid is described in twenty lines added by the editor.

Other important physical agents not considered in the book are massage, gymnastics, and exercise.

The part on electricity is quite complete, containing descriptions of the various apparatus in use, and giving in detail the facts of electro-physics and electro-physiology, as well as the manner of their application in the treatment of disease. This section has been largely added to by the editor, and contains all that is new on the subject.

MODERN MEDICINE AND HOMEOPATHY. Two addresses by JOHN B. ROBERTS, A.M., M.D. Points of Similarity Between Us and Homeopathic Physicians. The Present Attitude of Modern Medicine and Physicians Toward Homeopathy. Philadelphia: The Edwards & Docker Co., 1895.

THE author states in his preface that a desire to look at homeopathy without prejudice caused him "to devote several years to the study of books and journals written and edited by homeopathic physicians. Two presidential addresses were written as a result of this investigation. These are now reprinted, in the hope that some members of the medical profession may find in them reasons for abandoning a sectarian name, and that others may see the impropriety and folly of proscribing those whose opinions conflict with their own." As a matter of fact, nobody does "proscribe those whose opinions conflict with his own;" but Dr. Roberts is perfectly sincere in his belief that the interests of science and humanity will be best served and the folly of homeopathy made indubitably evident when physicians cease to draw any distinction between those educated men who term themselves homeopathic physicians but are not, and other educated men who refuse to accept sectarian designation. No one could demonstrate more forcibly than Dr. Roberts has done the essential and irreconcilable differences between scientific, progressive medicine and unscientific, irrational, fossilized sectarian dogma. No one could show more clearly that nearly all of those who term themselves "homeopaths" have ceased to practise homeopathy. The conclusion which he draws from these correct premises is so evidently a *non-sequitur* that it is useless to enter upon criticism.

THE DISEASES AND DEFORMITIES OF THE FETUS: AN ATTEMPT TOWARD A SYSTEM OF ANTENATAL PATHOLOGY. VOL. II. CONGENITAL DISEASES OF THE SUBCUTANEOUS TISSUE AND SKIN. By J. W. BALLANTYNE, M.D., F.R.C.P.E., F.R.S.E. Pp. 264. Edinburgh: Oliver & Boyd, 1895.

IT is with pleasure that we greet the second volume of this truly unique and valuable work. Dr. Ballantyne, than whom there is none better able to cope with the intricacies of his difficult subject, has undertaken a task of Herculean proportions, but he has shown himself thoroughly able to carry through what he has begun. The cordial reception that was extended the first volume, two-and-a-half years ago, must be repeated to this, its admirable successor. The subject-matter now considered includes the pathologic states of the cutaneous and subcutaneous tissues of the fetus, and more can be learned from a brief perusal of the pages of this volume than from hours of search through the tomes and magazines of a large medical library. The literature has been thoroughly culled, as the long bibliographic lists attest. The plates and illustrations are interesting and valuable, and the arrangement scientific and satisfactory. The author pays a handsome tribute to the recent work of Unna on the "Histopathologie der Hautkrankheiten," and states his preference for Unna's classification of cutaneous diseases. The book should occupy a place on the book-shelf of every obstetrician.

TEXT-BOOK OF OPERATIVE SURGERY. By DR. THEODOR KOCHER, Professor of Surgery and Director of the Surgical Clinic in the University of Bern. Translated with special authority of the author from the second revised and enlarged German edition. By HAROLD J. STILES, M.B., F.R.C.S. Edin. Royal 8vo, pp. 303. London: Adam and Charles Black, 1895.

THIS work is essentially a record of the author's experience and of his individual methods chosen as a result thereof, ably translated, by special authority, from

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the second enlarged and revised German edition. As compared with the first edition we find the work completely recast, greatly extended, and almost entirely re-illustrated. The plates are triumphs of artistic anatomic representation and a very valuable feature of the composition. The volume must greatly add to Kocher's reputation and raise him nearer to the position of the first surgeon of Europe, and, in view of his enormous experience, will be accepted as a reliable guide by operators.

Many of the technical descriptions have been taken from dictation during operations on the living subject, while others are derived from demonstrations on the cadaver. The illustrations have all been executed directly from these latter operations. Nearly all of the most recent operative procedures are described and depicted in this greatly improved edition. As a whole, the work is superb; a valuable addition to surgical literature; a monument to precision; a splendid reflection of the very best modern operative technic. Preceding the description of special operations are sections devoted to general considerations, anesthesia, treatment of wounds, and direction of incision. The absence of an index is to be regretted. The omission is inexcusable.

TRANSACTIONS OF THE MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA, at its Forty-fifth Annual Session, held at Chambersburg, 1895. Vol. xxvi. Published by the Society. Pp. 504. Philadelphia: The Edwards & Docker Co., printers, 1895.

THE Committee of Publication of the Medical Society of the State of Pennsylvania deserves great credit for the very early appearance of this volume, which contains fifty-four papers, not including the various special addresses.

The address of the President, John B. Roberts, is in the form of an essay, entitled "The Present Attitude of Physicians and Modern Medicine Toward Homeopathy." This address ought to be published by the Society for free and general distribution, as it is intended to acquaint the laity with the facts of homeopathic quackery.

The address in hygiene, by H. H. Longsdorff, is a scholarly paper, calling attention to moral deterioration as a cause of racial and national decline.

Among the papers worthy of mention as representing original work, we find the following: "A Contribution to the Study of Deaf-mutism," by Arthur A. Bliss; "Laryngeal Diphtheria," by Edwin Rosenthal; "The Toxin-treatment of Malignant Tumors," by John B. Roberts; "The Ligation of Arteries in Malignant Disease," by John H. Packard; "Movable Kidney," by Charles P. Noble; and "Dangers in the Use of Vaccine-virus," by H. M. Alexander. A list of the regular physicians licensed by the new Board of Examiners up to April 10, 1895, and the Code of Ethics of the American Medical Association are appended.

TRANSACTIONS OF THE MEDICAL SOCIETY OF THE STATE OF NEW YORK FOR THE YEAR 1895. Published by the Society.

THIS volume of 500 pages contains thirty-eight communications, together with reports of officers, and a chronologic list of the members of the Society since its organization in 1807. Excellent illustrations accompany several of the papers. Prince A. Morrow and J. A. Fordyce, in connection with their communications, gave an exhibition of lantern-slides, and some of these are reproduced in the report. The anniversary-address by George H. Fox, entitled "Credulity and Skepticism in Modern Medicine," contains sound sentiments and shows clearly how the medical literature of the day tends to produce skepticism among the members of the profession.

The report of the State Board of Medical Examiners states that the number of physicians locating annually in the State of New York has been reduced one-half since the institution of State examinations; the board is in favor of a full high-school training as a preliminary requisite to matriculation.

ON SOME SYMPTOMS WHICH SIMULATE DISEASE OF THE PELVIC ORGANS IN WOMEN, AND THEIR TREATMENT BY ALLOPIESTOMYOKINETICS (MASSAGE) AND BY AUTOPIESTOMYOKINETICS (SELF-MOVEMENTS OF MUSCLES UNDER PRESSURE). By A. RABAGLIATI, M.A., F.R.C.S.Ed. Pp. 77. New York: William Wood & Co., 1895.

IN this volume Dr. Rabagliati touches upon some of the many curious manifestations of that deplorable condition, neurasthenia, which unfortunately has become so common in a certain class of women. After a comprehensive study of these puzzling cases, he has at length come to the conclusion that even when the nervous system is at fault the disease does not primarily reside there. He believes that the trouble lies rather in the muscles or muscle-sheaths, and that, along with them, the nerve-sheaths, the periosteum or bone-sheaths, and many of the joints, particularly the false joints, are so frequently affected that the disease of these fibrous tissues is the main immediate element to be considered in the cases presenting themselves for treatment. Hence he has elaborated a system of kinetics, to be carried out by the physician, or by a masseuse under the former's directions and by the patient herself, whereby this fibrous disease may be counteracted. The book is eminently practical, and treats of a subject that is now of great interest. The original illustrations supplement the text in a clear and interesting manner, and have evidently been executed with care.

## NEWS ITEMS.

***The Southern Surgical and Gynecological Association*** will hold its eighth annual meeting at the Hotel Shoreham, Washington, D. C., on November 12, 13, and 14, 1895. The following is the program:

Address of Welcome, by H. C. Busey, M.D., Washington, D. C. Response to Address of Welcome, by Louis McLane Tiffany, M.D., President. A Case of Gunshot-Wound of the Brain, Removal of Bullet, Recovery, by W. E. Parker, M.D., New Orleans, La. Personal Experience in the Treatment of Stab-Wounds of the Intestines and Peritoneum, by Bedford Brown, M.D., Alexandria, Va. Report of Five Cases in Abdominal Surgery in which the Murphy Button was Applied, by A. Vander Veer, M.D., Albany, N. Y. Resection and Intestinal Anastomosis, by H. Horace Grant, M.D., Louisville, Ky. Cecal Hernia, with Report of Cases, by

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W. O. Roberts, M.D., Louisville, Ky. Necrosis of the Ribs in Three Cases, Resultant in Typhoid Fever, by W. L. Robinson, M.D., Danville, Va. Surgical Interference in Rectal Disorders, by J. McFadden Gaston, M.D., Atlanta, Ga. Cancer of the Pregnant Uterus, by George H. Noble, M.D., Atlanta, Ga. Hysterectomy for Fibroids, by E. S. Lewis, M.D., New Orleans, La. Abdominal Hysterectomy, by Joseph Price, M.D., Philadelphia, Pa. The Technic of Supravaginal Hysterectomy, by Howard A. Kelly, M.D., Baltimore, Md. Some of the Reasons for Preferring Vaginal to Abdominal Section for Pus in the Pelvis, by Joseph Taber Johnson, M.D., Washington, D. C. Indications and Technic of Vaginal Hysterectomy, by George H. Rohé, M.D., Catonsville, Md. Hysterectomy for Puerperal Sepsis, by A. M. Cartledge, M.D., Louisville, Ky. Management of Cases which have Recovered from Appendiceal Abscess in which the Appendix was not Removed, by J. D. S. Davis, M.D., Birmingham, Ala. Mental Complications as a Result of Surgical Operations, by J. T. Wilson, M.D., Sherman, Texas. Comparative Frequency of Stone in the White and Negro Races, by George Ben. Johnston, M.D., Richmond, Va. Report of Cases of Cystotomy for Stone, by W. F. Westmoreland, M.D., Atlanta, Ga. Parapharyngeal Tumors, Remarks on their Anatomy, Location, and Operative Treatment (from Three Observed Cases), by Christian Fenger, M.D., Chicago, Ill. Uninterrupted Anesthesia in Face and Mouth Operations, by Edmond Souchon, M.D., New Orleans, La. Annual Address of the President, by Louis McLane Tiffany, M.D., Baltimore, Md. Dr. J. Marion Sims and His Work: a Sketch, by John A. Wyeth, M.D., New York, N. Y. The Management of Intestinal Complications in Intrapelvic Operations, by L. S. McMurtry, M.D., Louisville, Ky. Vaginal Incision and Drainage in Pelvic Inflammation, by J. W. Long, M.D., Richmond, Va. Abdominal Pregnancy, by Cornelius Kollock, M.D., Cheraw, S. C. Report of a Case of Extrauterine Pregnancy, by John T. Henry, M.D., Chester, S. C. Endometritis, by James T. Jelks, M.D., Hot Springs, Ark. Fractures at Elbow-joint, by J. B. Murfree, M.D., Murfreesboro, Tenn. The Telephonic Bullet Probe, by A. H. Buckmaster, M.D., University of Virginia, Va. Surgical Hyperpyrexia, by George A. Baxter, M.D., Chattanooga, Tenn. Cholecystenterostomy, by W. B. Rogers, M.D., Memphis, Tenn. Surgery of the Biliary Ducts, by W. E. B. Davis, M.D., Birmingham, Ala. The Technic of the Buried Suture, by Henry O. Marcy, M.D., Boston, Mass. The Use of Subcutaneous Saline Infusion in Shock and Hemorrhage, by George H. Rohé, M.D., Catonsville, Md. Report of Cases of Tracheotomy for Foreign Bodies in the Trachea, by W. F. Westmoreland, M.D., Atlanta, Ga. Abscess of the Lung, by James A. Goggans, M.D., Alexander City, Ala. Report of a Case of Ligation of the Common Iliac Artery, Recovery, by W. E. B. Davis, M.D., Birmingham, Ala.

*Obituary.*—Second-Lieutenant Leonard M. Prince, Second Infantry, United States Army, died at the Presbyterian Hospital, in Chicago, on Friday last, from injuries received at Annapolis in 1892 in one of the annual games formerly played between the cadets of the United States Military Academy and the Naval Academy. In a scrimmage for the ball an unknown player fell on the small of Lieutenant Prince's back with both knees. When the ball was put in play again it was discovered that Prince could not rise, and he was carried off the field. An examination showed that two floating ribs on his left side were broken and internal injuries inflicted. He was sick for some time, but after he had been graduated it was thought all danger from his injuries was past. While exercising in his post-gymnasium at Fort Omaha 8 months ago, however, he again experienced the old pains. He returned to his home in Bloomington, Ill., where the family-physician pronounced his sickness a result of the injuries received in the football game of 1892. During his career as an army-officer Lieutenant Prince was the recognized leader of his regiment in everything pertaining to athletics. He designed the regimental gymnasium at Fort Omaha, and was instructor in athletics. He leaves a widow and a two weeks-old child.—*N. Y. Herald.*

*The Revival of the Index Medicus.*—We are advised of the following list of subscribers in addition to those previously published:

Dr. I. E. Atkinson, Baltimore.
Dr. Frank Fremont-Smith, Bar Harbor.
Doliber, Goodale & Co., Boston.
Dr. Charles G. Stockton, Buffalo.
Dr. Gustave Fütterer, Chicago.
Dr. Werth, Kiel, Germany.
Philadelphia Neurological Society.
Dr. Adolph Koenig, Pittsburg.
Dr. Samuel H. Friend, Milwaukee.
Dr. J. H. Bryan, Washington.
Medical Society, District of Columbia.
Dr. G. R. Fowler, Brooklyn.
Dr. J. W. Brannan, New York.
Hoagland Physiologic Laboratory, Brooklyn.
Dr. Martin Deschere, New York.

*The Tri-state Medical Society of Iowa, Illinois, and Missouri* at its last meeting elected the following officers: *President*, Dr. Robert H. Babcock, Chicago; *First Vice-President*, Dr. A. H. Cordier, Kansas City; *Second Vice-President*, Dr. W. A. Todd, Chariton, Iowa; *Treasurer*, Dr. C. S. Chase, Waterloo, Iowa; *Secretary*, Dr. G. W. Cale, St. Louis. The next meeting will be held in Chicago the first Tuesday, Wednesday, and Thursday in April, 1896.

*The William F. Jenks Memorial Prize* of the College of Physicians of Philadelphia for 1895 has been awarded to Dr. Abram Brothers, of New York, for an essay on "Infant-mortality During Labor, and its Prevention."

*The Alvarenga Prize* of the College of Physicians of Philadelphia for 1895 has been awarded to Dr. Guy Hinsdale, of Philadelphia, for an essay on "Syringomyelia."

*Prof. Edward G. Conklin*, of the Northwestern University, has been elected Professor of Comparative Embryology, to succeed the late Dr. John Ryder.

*Dr. Franklin Bechtel Gilbert*, a retired physician and veteran of the Civil War, died November 4th, at the age of 69 years.

*Dr. Edward C. Kirk* has been elected Professor of Clinical Dentistry.

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***Dr. Harrison Allen*** **has been elected Emeritus Professor of Comparative Anatomy in the University of Pennsylvania.**

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BOOKS AND PAMPHLETS RECEIVED.

Expert Medical Testimony. By B. W. Holliday, A.B., M.D. Reprinted from the Cleveland Medical Gazette, 1895.

Epilepsy in its Relation to Insanity. By B. W. Holliday A.B., M.D. Reprinted from the Cleveland Medical Gazette, 1895.

An Attempt to Analyze the Statistics of Diphtheria in Easton, from 1888 to 1894, inclusive. By J. W. Moore, M.D. Reprinted from the Lehigh Valley Medical Magazine, 1895.

The Radical Cure of Hydrocele. By D. C. Hawley, A.B., M.D. Reprinted from the Journal of the American Medical Association, 1895.

Normal Distribution of the Blood and its Exchange with the Surrounding Tissues through Exosmose and Endosmose. Can it be Controlled by Remedial Gymnastics? By Henric Sparre, M.D. Pamphlet. Pittsburg, Pa.

Transactions of the Vermont State Medical Society for the Year 1894. Published by the Society. Annual Meeting in 1895 at Burlington, October 10th and 11th. Burlington, Vt. : J. E. Peters' Steam Book and Job Printery, 1895.

Denver School of Medicine. Medical Department, University of Denver. Fifteenth Annual Announcement. Session of 1895–96. Catalog of Alumni and of the Matriculates and Graduates of the Session of 1894–95. Denver, Col., 1895.

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# THE MEDICAL NEWS.

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## ORIGINAL ARTICLES.

### REPORT OF 111 ADDITIONAL CASES OPERATED UPON WITH THE ANASTOMOSIS-BUTTON.


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THIS paper presents in tabulated form 111 additional cases operated upon with the anastomosis-button since the publication of my article, "Analysis of Cases Operated on with the Aid of the Murphy-Button up to the Present Time." (THE MEDICAL NEWS, February 9, 1895.) These were gathered from a cursory examination of the current medical literature and from correspondence. They do not include a number of cases reported to me verbally at medical meetings and in my intercourse with medical *confrères*, in regard to which I lack data sufficient to make them available for publication. Beside presenting the tabulated list, this paper gives a brief analysis of the various groups and calls attention to some of the more instructive cases, making such deductions as would seem legitimate from the results obtained.

GASTROENTEROSTOMY FOR MALIGNANT DISEASE. *By Lateral Apposition.* This operation has been performed in 61 cases altogether, with 28 deaths. Of the 34 new cases, 7 died from exhaustion and shock, while the result of the operative technic, as far as we can learn from the reports, was perfect. This further emphasizes the position taken in a former paper that gastroenterostomy in extremely emaciated and cachectic patients is not a justifiable or, at least, an expedient procedure. It can hardly be expected to prolong life or materially alleviate the condition of the patient. Six of the whole number died from peritonitis; of these, in Case 24 there was perfect union at the seat of approximation, showing that the infection existed from the time of the operation and was not due to any defect in the method used. In two of these cases there was an imperfect approximation of the two sections of the button; in a third the smallest-sized button was employed and the thickened wall of the stomach could not be retained within its grasp. An explanation of the imperfect closure of the button was given by both operators, viz., that sufficient pressure was not employed. The case reported by Zielewicz, who was so hasty to draw conclusions, was thoroughly analyzed by Dr. Willy Meyer[1] and Alex. C. Wiener.[2] The report of the autopsy did not state that there were any evidences of union in any part of the approximated surfaces, but I cannot believe that with a properly closed button the wall of the small intestine will stand the pressure for several days without atrophy at some points of its circumference; and if the surfaces were in apposition for seven days there should have been union, unless infection existed. The operation by other methods shows that union can occur within forty-eight hours, and in the dog the button has frequently been voided as early as the third day. Moreover, eating half a pound of "leberwurst" at one meal was rather an heroic test for a seven-day union.

In one case of peritonitis death occurred on the eighth day, with carcinomatous growth involving the whole stomach. One death that occurred on the second day was attributed simply to the generally bad condition of the patient, and in still another no cause whatever was stated. One death was due to a continuation of a hemorrhage that had persisted for weeks before the operation.

In four cases the button was found in the stomach. This is not surprising when we consider the enormous gastric dilatation that accompanies pyloric obstruction. The danger from this occurrence I consider slight, as when the stomach regains its tone the button is likely to be forced out through the enlarged opening that has been found in these cases. The tolerance of the stomach to foreign bodies is well demonstrated by occasional reports of autopsies at insane-asylums, and the largest-sized button is not in itself a specially dangerous or toxic substance.[3] In future cases of gastroenterostomy I would advise the use of the oblong button, as its shape would favor its early expulsion. I think the operation should be reserved for cases of non-malignant pyloric obstruction and small annular carcinomata without secondary glandular infection. In the first

[1] Centralbl. f. Chirurg., Nov. 2, 1874.
[2] Centralbl. f. Chirurg., Jan. 26, 1895.
[3] See case reported by Quenu. Med. Week, October 25, 1895, p. 511.

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## RESECTION, END-TO-END APPROXIMATION. (METHOD: MURPHY BUTTON.)

| No. | Date. | Publication. | Operator. | Diagnosis. | Operation. | Position | Result. | Cause of death. | REMARKS. |
|---|---|---|---|---|---|---|---|---|---|
| 93 | 1894 Feb. 4 | Col. Climat., Mar. 15, 1895. | Wooding, B. F., Trinidad, Col. | Bullet-wound. | Resection, 4 inches. | E. E. | D. | Operated 2 days after injury. | Patient collapsed before operation; death 8 hours after operation. Post-mortem, two perforations not detected. |
| 94 | Aug. 19 | Col. Climat., Mar. 15, 1895. | Parkhill, C., Denver, Col. | Intestinal obstruction. | Lateral approximation. | S. S. | D. | Collapse. | Patient in extreme condition when operated; did not rally from collapse. Carcinoma of hepatic flexure of colon; frequent bowel movements after operation. |
| 95 | Oct. 17 | Col Climat., Mar. 15, 1895. | Lyman, C. B., Denver, Col. | Crushing injury of abdomen. | Resection, 2 inches. | E. E. | D. | Shock. | Crushing injury involving the left thigh and left side of abdomen; tissues ecchymotic and emphysematous. Abdomen opened in median line; circumscribed abscess between crest of ilium and last ribs communicated with intestine, evidently result of old intestinal ulceration. Peritonitis (general) present at time of operation. Patient died 1 hour after operation. "The operation was hopeless from the start." |
| 96 | Aug. 8 | Not published. | Murray, T. J., Butte, Mont. | Strangulated hernia. | Resection, 12 inches. | E. E. | R. | ..... | Button No. 3 used; voided 12th day. Strangulation existed 6 days. Fecal matter oozed through wall of strangulated bowel. |
| 97 | ..... | Lancet, London, April 6, 1895. | Barling, J., Birmingham, Eng. | Strangulated hernia, umbilical. | Resection, 5 inches. | E. E. | R. | ..... ... | Button No. 4 used, which passed on 24th day. Uneventful recovery. |
| 98* | Nov. 27 1895 | Lancet, London, March 9, 1895. | Bush, J. P., Bristol, Eng | Strangulated hernia. | Resection, 5 inches. | E. E. | R. | ..... | Button voided on 37th day. Patient in excellent condition four months after operation. |
| 99 | Jan. 10 | Gazette Hebdom., March, 1895. | Villard, E., France. | Strangulated hernia, gangrenous. | Resection, 4 inches. | E. E. | R. | ... ..... | Button voided on 14th day. Uneventful recovery. |
| 100 | Feb. | Brit. Med. Journal, April 20, 1895. | Morton, Charles Q., Bristol, England. | Intestinal obstruction (malignant). | Lateral approximation. | S. S. | R. | ..... | Approximation of side of ileum to side of colon. Button No. 4 used. Not found up to date of publication. Uneventful recovery. |
| 101 | Jan. 29 | The Lancet (London). | Lane, J. Ernest, London, England. | Strangulated hernia, 4 days. | Resection, 5 inches. | E. E. | R. | . ..... | Button removed from rectum on 19th day. Patient had delirium tremens, diarrhea, and infection from gangrene in shock following operation, still made an excellent recovery. |
| 102 | Feb. 25 | The Lancet (London). | Lane, J. Ernest, London, England. | Strangulated hernia, fem., 7 days. | Resection, 7 inches. | E. E. | D. | Shock, 30 hours. | Patient did not rally after operation. Necropsy: Perfect approximation, some adhesions, no peritonitis. |
| 103 | June | Not published. | Beckett, W. W. and Haynes, Fr. C., Los Angeles, Cal. | Strangulated hernia. | Resection, 6 inches. | E. E. | R. | ..... | Splendid recovery; button passed on 21st day. |
| 104 | Jan. 4 | The Lancet (London). | Owen, Edmund, London, England. | Carcinoma of ascending colon. | Resection. | E. E. | D. | ..... | Time from operation to death not given; gas escaped from wound. Necropsy: Perforation found on distal side of button, where thin bowel pressed against side of button. |
| 105 | 1895 | Not published. | Wittwer, H. R., Chicago. | Abscess following oöphorectomy, rupture of bowel. | Resection, 3 inches. | E. E. | D. | Peritonitis. | While removing an abscess-sac which ruptured into peritoneal cavity bowel was torn. Death from peritonitis in 48 hours. Anastomosis completed in 13 minutes. Necropsy: Button in position; union perfect, water-tight. |
| 106 | 1894 Aug. 18 1895 | " " | Silver, H. M., New York. | Strangulated femoral hernia. | Resection, 3 inches. | E. E. | R. | ..... | Button voided on 8th day; not one disagreeable symptom after operation. |
| 107 | April 5 | " " | Stewart, J. T., Los Angeles. | Carcinoma of cecum and colon. | Resection, 12 inches. | E. E. | R. | ..... | Cecum with ascending colon resected; end of ileum joined to end of ascending colon; button voided on 16th day. |
| 108 | Jan. 11 | " " | Kime, J. W., Fort Dodge, Ia. | Strangulated perforated hernia. | Resection. | E. E. | D. | Shock, 2 hours. | Patient was operated on for strangulated hernia six days previously and gangrenous bowel returned into the abdomen; it perforated in many places, producing a fatal peritonitis, which was present at time of resection. |
| 109 | 1894 Feb. 3 | " " | Vander Veer, A., Albany, N. Y. | Stricture of sigmoid. | Resection, 4 inches. | E. E. | R. | ..... | When end of rectum was united to sigmoid I recognized that there was too much pressure of the bowel over crest of sacrum, and that obstruction might result from the pressure. On third day patient presented all the marked symptoms of obstruction of bowel, though gas had been passed per rectum up to that time. Left inguinal enterostomy of small intestine; free discharge; death from exhaustion in 11 days. Necropsy: Ends of intestine found united; button loose in lower portion of rectum. Patient exhausted before operation. |
| 110 | 1895 Jan. 4 | " " | Vander Veer A., Albany, N. Y. | Multilocular ovarian cyst. | Resection, 6 inches. | E. E. | R. | ..... | Six inches of ileum imbedded in papillomatous growth; it was resected and ends united with Murphy button, making operation exceedingly simple. Button not found, but on 19th day three evacuations were not examined. This patient made a remarkable recovery after severe nervous symptoms; now in absolute health; gained 20 pounds. |

* No. 98 duplicated, same as No. 120.

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| 111 | May 30 | Not published. | Peck, George S., Youngstown, O. | Fecal fistula, large. | Resection ileum, 4 inches. | E. E. | D. | Septic peritonitis, 28 hrs. | Autopsy revealed a large collection of chocolate-colored fluid in peritoneal cavity. Button in perfect position; no leakage. |
| 112 | July 23 | " " | Peck, George S., Youngstown, O. | Appendicitis, gangrene. | Resection, 3 inches. | E. E. | R. | ..... | Ileum found gangrenous and perforated, requiring resection. Button passed on 13th day. |
| 113 | 1895 | Belgian Surg. Soc. | Rouchet, P., Antwerp, Belg. | Gangrenous hernia. | Resection. | E. E. | R. | ..... | The number of inches resected was not given in letter. |
| 114 | 1894 Dec. 6 | The Lancet, Lond., May 11, 1895. | Spencer, W. G., London. | Gangrenous hernia. | Resection. | E. E. | D. | Collapse, 12 hrs. | Patient operated on December 2, 1894, for strangulated femoral hernia; Littré; with gangrene of diverticulum. After operation gangrene spread to intestine, and three days later patient vomited coffee-colored fecal matter; this continued until next day, when a second operation was performed. Bowel found gangrenous and resected. Gangrenous bowel torn during operation; fecal extravasation. Death 12 hours later. Necropsy: Peritoneum dark-red hue covered with yellow lymph, most abundant in right iliac region. |
| 115 | 1895 Feb. | Not published. | McGuire, Stuart, Richmond, Va. | Bullet-wound. | Resection (double). | E. E. | D. | Shock, 18 hours. | In one place of 22 inches there were 11 perforations; resected; end-to-end union. Five feet from this place there were two perforations requiring second resection. Necropsy: No peritonitis; the button held bowel in perfect apposition. |
| 116 | Apr. 13 | " " | McGuire, Stuart, Richmond, Va. | Strangulated hernia, umb. | Resection, 16 inches. | E. E. | R. | ..... | Uninterrupted recovery. Button was found in the rectum on 22d day. |
| 117 | ? | Med. News, April 13, 1895. | Cauthorn, F., Portland, Ore. | Tumor of mesentery. | Resection, 48 inches. | E. E. | R. | ..... | Patient did very well for two months, when he began to suffer from borborygmus, colicky pains, and diarrhea. This continued for a long time, when he had a perforation of bowel from button. I feel that I should have operated again for the symptoms. |
| 118 | ? 1895 | Not published. | Dunn, J. H., Minneapolis, Minn. | Carcinoma caput coli. | S. S. approximation. | E. E. | R. | ..... | Fistula at seat of union producing adhesion of adjacent coil, causing retention of button. |
| 119 | June 1 | " " | Frederick, Buffalo, N.Y.; Cotter, J C., Meadville, Pa. | Large vaginal intestinal fistula. | Resection. | E. S. | R. | ..... | End of bowel liberated from vagina, liberated end sutured. Proximal end joined to side of distal with button. Button found in rectum on 11th day. Perfect recovery. |
| 120 | 1894 Nov. 27 | The Lancet, Lond., April 6, 1895. | Bush, Paul J., Bristol, England. | Strangulated hernia (gangrene). | Resection. | E. E. | R. | ..... | Large-sized button. Patient had severe pneumonia following operation. On January 4, 1895, button passed without pain, imbedded in a large mass of feces. Patient under observation for four months; at the end of this time in excellent health. |
| 121 | 1895 Feb. | Not published. | Hill, William, Bloomington, Ill. | Typhoid-perforation. | Resection, 1 inch. | E. E. | R. | ..... | Button voided on 17th day. Perforation occurred in 6th week of recurrent typhoid. So much of wall of bowel involved in ulcer that it could not be sutured. Operation twelve hours after first symptom of perforation. Patient, boy 13 years old. Excellent recovery. |
| 122 | ..... | Brit. Med. Journal, Feb. 23, 1895. | Banks, W. Mitchell, | Fibrous tumor of ileum. | Resection. | E. E. | D. | Exhaustion, 30 hours. | Patient in poor condition; did not rally from operation; bowel soundly glued together, except at one point a slight leakage; no peritonitis. |
| 123 | 1894 Dec. 30 | Brit. Med. Journal, Feb. 23, 1895. | Banks, W. Mitchell, | Intussusception, gangrene. | Resection. | E. E. | R. | ..... | Patient, boy 7 years old. Button passed 18th day. Operation done with greater ease and rapidity. |
| 124 | July 11 | Brit. Med. Journal, Feb. 9, 1894. | Hamilton, Geo. G. | Carcinoma transverse colon. | Resection. | E. E. | R. | ..... | Button passed 24th day. Recovery uneventful. |
| 125 | July 11 | Ann. Surg., xxi, 72. | Abbe, R. | Carcinoma of colon. | Resection. | E. E. | D. | Intestinal obstruction. | Button too small; occluded with feces. Abbe thinks larger-sized button would have saved patient. |
| 126 | Sept. 14 | Mathew's Medical Quart., Apr. 1895. | Lilienthal, H. | Abdominal abscess. | Resection. | E. E. | D. | Peritonitis. | Colon atrophied; difficult to insert button 1¾ inches; button cut through. |
| 127 | Sept. 27 | Mathew's Medical Quart, Apr. 1895. | Lilienthal, H. | Sacral tumor. | Resection. | E. E. | R. | ..... | Colon atrophied. Lumen of button filled with strip of gauze leading down to anus, which was removed on 4th day. Button had to be removed by rectum, as it was lodged at sacral tumor. |
| 128 | 1895 Feb. 10 | Revue de Chirurg., Sept., 1895. | Forgue (Montpellier). | Artificial anus. | Resection. | E. E. | D. | Collapse. | Intestine thickened and friable; fissure above button sutured. The intestine enormously thickened. |
| 129 | Sept. 9 | Beitr. zur klin. Chir., xiv, 95. | v. Frey, R. | Artificial anus. | Resection. | E. E. | D. | Peritonitis. | Peritonitis existing before operation. |
| 130 | ..... | Ann. Surg, Oct., 1895. | Abbe, R. | Strangulated hernia. | Resection. | E. E. | D. | ..... | 48 hours; good union; no leakage. Kinking in bowel on distal side of button. Reopening of abdomen 48 hours later showed a kink in bowel below button. The approximated parts had gravitated to lowest portion of pelvis. It seemed to Dr. Abbe that the weight of the button had given rise to the sharp bend. Dr. Rushmore considered the obstruction due to paralysis of gut. |
| 131 | ..... | Hosp. Tidende, July 24, 1895. | Borelius, J., Sweden. | Hernia, gangrene. | Resection, end to end. | E. E. | R. | ..... | Convalescence uneventful; button passed. |
| 132 | ..... | Hosp. Tidende, July 24, 1895. | Borelius, J., Sweden. | Ileus. | Resection, end to end. | E. E. | D. | Peritonitis. | |

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RESECTION, END-TO-END APPROXIMATION. (METHOD: MURPHY BUTTON.)—*Continued.*

| No. | Date. | Publication. | Operator. | Diagnosis. | Operation. | Position | Result. | Cause of death. | REMARKS. |
|---|---|---|---|---|---|---|---|---|---|
| 133 | 1895 Mar. 8 | Hygiea, March, 1895. | Borelius, J., Sweden. | Artificial anus. | Resection, end to end. | E. E. | R. | ..... | Button passed 26th day. |
| 134 | Mar. 1 1894 | Hygiea, March, 1895. | Borelius, J., Sweden. | Strangulated hernia. | Resection, end to end. | E. E. | R. | ..... | Button passed 12th day. |
| 135 | ..... | Hosp. Tidende, July 24, 1895. | Tscherning, Sweden. | Carcinoma of colon. | Resection and nephrectomy. | E. E. | D. | Infection. | Suppuration in retro-peritoneal connective tissue. Death not attributable to button. |
| 136 | Nov. 11 | Beitr. zur klin. Chir., xiii. | Czerny, Heidelberg, Germany. | Gangrenous hernia. | 2 resections—1 suture, 1 button. | E. E. | D. | Collapse (same day). | Colon gangrenous from cecum to sigmoid, 50 cm.; 170 cm. of small intestine gangrenous. Autopsy showed both anastomoses perfect. |
| 137 | 1895 Jan. 28 | Practitioner, London, June, 1895. | Treves, H., London, Eng. | Carcinoma of colon. | Lateral anastomosis. | S. S. | R. | ..... | Transverse colon united to sigmoid flexure. Button passed 8th day. Recovery uneventful. |
| 138 | Mar. 25 | Lancet, London, June 15, 1895. | Mayo-Robson, Barrs, A. G., Leeds, Eng. | Extensive carcinoma of splenic flexure. | Lateral anastomosis. | S. S. | R. | ..... | Carcinoma too extensive for removal. Ileum approximated to sigmoid flexure. Time for anastomosis less than 5 minutes, time being noted without operator's knowledge. Flatus passed on 2d day; bowels moved on 3d. Patient died of pneumonia on 11th day. Autopsy: Perfect intestinal approximation; button free in cecum on proximal side; no peritonitis. |
| 139 | ..... | Trans. Amer. Assoc. Obstet. and Gyn, 1894. | Macdon'd, Willis, J., New York. | Strangulated hernia 7 days. | Resection, 10 inches. | E. E. | D. | 70 hours after operation. | No autopsy. The coil of intestine in which the anastomosis had been made was taken out through wound. Button occluded with hard black mass. |
| 140 | Sept. 6 | Not published. | Walker, J. W., Cook Co. Hosp., Chicago. | Gunshot-wound of abdomen. | Resection, 2 inches. | E. E. | R. | ..... | Button passed on 15th day. Double perforation 8 inches apart. Two openings resected, 3d sutured. |
| 141 | ..... | " " | Rosenberry, H. L., Wausau, Wis. | Strangulated hernia. | Resection, 12 inches colon. | E. E. | R. | ..... | Patient had peritonitis at time of operation; had singultus for 3 days; all subsided. Patient progressed nicely; committed suicide later. |
| 142 | 1893 Mar. 10 | " " | Rosenstein, Julius, San Francisco, Cal. | Strangulated umbilical perforated hernia. | Resection of transverse colon. | E. E. | D. | Collapse. | Patient unconscious from hemorrhage and shock from gangrene of colon and skin over hernia, with perforation of both; parts rendered clean; patient's temperature and pulse high; gangrene continued in bowel after operation; 2d resection; death in a few hours; no peritonitis; collapse. Autopsy: Intestine again showed signs of commencing gangrene, even though she lived but a few hours after the second operation. |
| 143 | Sept. 16 | " " | Rosenstein, Julius, San Francisco, Cal. | Carcinoma of stomach, tra. colon. | Resection of colon, 2 inches. | E. E. | D. | Exhaustion 6th day. | No abdominal symptoms after operation; constant discharge of ascitic fluid. Autopsy: Large tumor in posterior wall of stomach, one in pylorus; greater and lesser omentum studded; anastomosis perfect; no peritonitis. |
| 144 | ..... | " " | Banks, W. Mitchell, Liverpool, Eng. | Cicatricial contraction at cecum. | Lateral anastomosis. | E. E. | R. | ..... | Case of old cecal inflammation producing obstruction by contraction; ileum severed 8 inches from ileo-cecal valve, and attachment of proximal end to middle of ascending colon. Perfect convalescence; button voided on 19th day. |
| 145 | 1894 Sept. 15 | " " | Murphy, J. B., Chicago. | Intussusception. | Enterotomy. | E. S. | D. | Shock, 3 hours. | A case of 5-day intussusception; child in extreme condition when operated on; ileum invaginated in cecum and colon, could not be reduced; ileum divided and buttoned to ascending colon; distal end sutured; patient did not rally. |
| 146 | 1895 Oct. 18 | " " | Murphy, J. B, Chicago. | Tumor of bowel. | Enterectomy, 24 inches. | E. E. | R. | ..... | Tumor showed first symptoms 7 weeks previous to operation; was accompanied by temperature of 102.5°; originated in mesentery of ileum; involved entire intestinal wall for 7 inches and mesentery for 24 inches of bowel; no obstruction; glands in other portions of mesentery enlarged; no ulceration on mucous surface of bowel; still temperature 102½°. Simulating a case of old appendicitis, except the history was not right for appendicitis. |
| 147 | Apr. 22 | Centlbl. Chir, Oct. 12, 1895 | Kofman, Odessa, Russia. | Intussusception, stricture. | Resection, 4 cm. | E. E. | R. | ..... | Button voided on 16th day. The intussusception occurred in the jejunum, and bowel was perforated. |
| 148 | June 15 | Not published. | Bacon, J. B., Chicago. | Stricture of rectum, specific. | Lateral approx. clamp. | S. S. | R. | ..... | Button voided on 8th day. Examination on October 23d showed large rectum; practically all fibrous deposit in rectum had disappeared, tissue being now soft and pliable. |
| 149 | 1894 Sept. 13 | " " | Murphy, J. B., Chicago. | Carcinoma of rectum. | Resection, 3 inches. | E. E. | R. | ..... | Annular carcinoma of rectum in patient 71 years old; button voided 10th day. Patient has had no recurrence, October 20, 1895. |

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class all of the advantages of pylorectomy are obtained with a minimum of danger; in the second, the patient's condition is greatly improved and life is materially prolonged.

*Conclusions.* 1. Gastroenterostomy should never be performed in extremely cachectic patients. There is nothing to gain and much to lose.

2. The posterior wall of the stomach is the preferable locality for the approximation.

3. Supporting sutures, outside of the button, are not necessary, except for the relief of tension.

4. The peritoneum of the stomach should be scarified at the point of approximation, as union is thus hastened.

PYLORECTOMY. We have reports of 7 pylorectomies, with 5 recoveries and 2 deaths. One patient of Dr. H. R. Wittwer died five days after the operation, which lasted forty minutes. The autopsy showed a perfect approximation and no peritonitis. Death occurred from exhaustion. Malthe seems to attribute his ill-success in one case to imperfect suturing posteriorly with resulting fistula and peritonitis. The patient survived, however, for three weeks.

This operation is one that should be strongly commended in all cases of incipient carcinoma of the pylorus. With this operation the danger is not great, the time occupied being greatly reduced by the use of the button to approximate the duodenum and posterior wall of the stomach.

Dr. A. H. Ferguson, of this city, was the first to operate with the anastomosis-button, July 25, 1893; the patient is still living and in excellent health. Diagnosis of carcinoma of the pylorus should be made long before any tumor is palpable in the epigastrium, and the earlier the operation the better the prognosis, immediate and remote.

CHOLECYSTDUODENOSTOMY. Fifty-one cases are reported, with two deaths, one of these on the seventh day from continued hemorrhage from a laceration of the liver produced in separating adhesions. The other death was from peritonitis due to the escape of septic contents of the gall-bladder into the abdominal cavity during the operation. Death occurred on the fourth day.

The indications for this operation are (1) permanent obstruction of the cystic duct, (2) obstruction of the common duct, (3) cases of septic cholecystitis when a long period of continuous drainage is desirable, (4) cases of fistula of the gall-bladder when the patient is becoming emaciated from loss of bile. The later operations have included the simultaneous removal of the gall-stones, though I had not found that allowing the gall-stones to remain and pass with the button interfered in any way with the favorable progress of the case. It has certainly not been my experience that allowing them to remain in the gall-bladder in cholecystenterostomy is the source of danger that certain operators and theorists in gall-tract surgery would have us believe. In cases of long-continued and severe jaundice all prolonged and extensive operations should be avoided, as these patients withstand the depressing effect poorly and frequently succumb to uremia. This is well demonstrated by a comparison of the statistics of the operations of cholecystostomy and cholecystectomy, and it is also further shown by the results obtained in cholecystenterostomy for malignant disease, when we have in addition to cholemia the malignant cachexia. Operations under such existing conditions are practically hopeless. There were 12 operations of this kind, with 10 deaths. In only 2 of these was there a failure of union, and in both the tissues were so friable that the button tore through. The tendency to general subcutaneous and submucous hemorrhage, as well as to bleeding from local lacerations, is very marked. The drainage-tube-button has been used to advantage in cases of contracted gall-bladder in which it was impossible to suture this viscus to the abdominal wall.

INTESTINAL APPROXIMATION. While the anastomosis-button was originally devised for the operation of cholecystenterostomy, for which all admit that it is an ideal apparatus, still its greatest field of practical usefulness has been in the surgery of the intestines. In the analysis of the operations on the intestine, the special pathologic conditions and the general state of the patient at the time of operating must be taken into consideration in order to properly estimate the merits of the surgical procedure. The intrinsic dangers of the lesions in this class of cases will always insure a considerable mortality, certainly until diagnosticians are more accurate in their art and surgeons are more prompt in their action.

The operations on the intestines are here divided into the following classes: (1) Resections of the bowel for gangrene: *a*, for internal obstruction; *b*, for hernia; (2) resection of the bowel for the cure of fecal fistula; (3) resections for internal obstructions other than malignant disease; (4) resections for malignant growths; (5) resections for perforations of the intestine, traumatic or otherwise; (6) resection of the rectum; (7) Bacon's operation.

The resections for gangrene, internal and external, including both large and small intestine, number 34, with 8 deaths, or very nearly 24 per cent. There were 15 cases of resection for the relief of fecal fistula, with 12 recoveries and 3 deaths. In one of these latter (No. 128) death occurred from collapse; the intestinal wall was enormously thickened and very friable, and in the manipulations it was impossible to properly close the button; a fissure was left and closed by suture. The other two cases both died of peritonitis. In No. 129 the inflammation



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of the peritoneum existed at the time of operation, and in No. 111 the patient died 28 hours after the operation from septic peritonitis, but with the button in perfect position and without leakage. Dr. Peck kindly sent me the specimen for examination.

Resections of the bowel for obstruction from non-malignant disease number altogether 53, with 47 recoveries and 6 deaths, a mortality of about 11 per cent. If to these be added the 7 cases of Dr. Joseph Price, we have a total of 60 cases, with 7 deaths. To this also may be added 6 lateral approximations, previously reported, making a total of 66, with 7 deaths, a mortality-percentage of about 10 per cent.

The resections of the bowel for malignant disease show a larger mortality than do operations for malignant disease elsewhere in the body. There was a total of 41 operations, with 26 recoveries, and 15 deaths, a mortality of 37 per cent.

RESECTIONS FOR PERFORATIONS OF THE INTESTINES, TRAUMATIC AND PATHOLOGIC. The mortality in the cases operated on for perforations, both for gunshot-wounds, perforating ulcers, and laceration of the bowels has always been very great. The danger is not in the operation, but in the pathologic conditions produced by the lesion. Leube, in his collection of 322 cases, found that when the operation was performed within 12 hours after the injury, the mortality was 58.2 per cent.; if later than 12 hours, the mortality was 79.5 per cent. These statistics emphasize most forcibly the necessity of early operation in such cases. With bullet-wounds of the abdomen, there are the collapsed condition of the patient, the profuse hemorrhage, the shock to the nervous system, all contributing to increase the mortality. In operations for bullet-wounds, evisceration should never be practised; the intestine should be carefully examined from one end to the other without having more than one foot of their length exposed outside of the abdomen at any one time. Every opening should be clamped with forceps as soon as discovered and the uninjured portions immediately returned. The number of perforations made by one bullet ranges from 1 to 18. The openings in the small intestines, as a rule, are in close proximity to each other, and many may be included in a single resection of 2 or 3 feet. The perforation in the colon may be a long distance, by way of the canal, from those in the small intestine. The median incision is most practicable and available for wounds in the small intestine, the lateral incision for those of the cecum and sigmoid. An approximately accurate estimate of the position of the perforations can be made by noting the track of the bullet, and the bullet itself may be located by the ingenious telephonic probe of Dr. Girdner, of New York. Double resections may be made and two buttons used, as illustrated by the cases of Dr. R. R. Williams, Dr. F. H. Wiggins, and Dr. Stuart McGuire.

In this connection I desire to mention particularly a very interesting case reported to me by Dr. Wm. Hill, of Bloomington, Ill.:

The patient was a male, aged 13, in the sixth week of a recurrent typhoid, who was attacked with sudden abdominal pain, nausea, vomiting, and tenderness in the right iliac region. When seen by Dr. Hill, twelve hours later, the abdomen was tympanitic, the patient's pulse good, the temperature about 102°. The diagnosis was perforation. Immediate celiotomy was undertaken twelve hours after onset of symptoms. The perforation was located; there was considerable peritonitis. So much of the circumference of the bowel was involved in the ulcer that a resection was made, with end-to-end approximation with button No. 3. Recovery was uneventful. The button was voided on the seventeenth day.

(To be continued.)

## FOOD-INFECTION WITH TOXICOGENIC GERMS.

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WITHIN recent years there has apparently been a great increase in the number of instances of food-poisoning. This increase has been partly real and partly only apparent. The actual increase has been due to the larger consumption of preserved foods and the wider distribution of food from a given point. When we recognize the facts that the scientific principles of bacteriology are involved in the preparation of every can of preserved food and that this work is done wholly by those who are grossly ignorant of these principles, we can only wonder that harm does not come to the consumer more frequently than it does. Moreover, diseased and damaged articles of food can be worked in preserved preparations and sold as prime goods when they could not be so disposed of otherwise. We do not claim that this is a fraud frequently practised, but that it has been occasionally resorted to both in this country and in Europe has been abundantly demonstrated.

It is not our purpose in this paper to discuss the use of tuberculous meat and milk or of any other food invaded by specific infection; but we wish to give our attention to those cases of food-poisoning in which the infecting agent is a saprophytic poison-producing microorganism.

The apparent increase in the number of instances of this kind is due to the fact that the medical profession has but recently learned to recognize this form of food-infection as a cause of illness, or, at least, has been in the possession of the knowledge necessary to convert suspicion into demonstration.

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Only a few years ago we were seeking for the cause of the summer diarrheas of infancy in mysterious telluric and meteorologic conditions, but now we know that these diseases are solely due to infected, and consequently poisonous, food. Formerly many cases of food-poisoning were supposed to be due to the accidental or criminal addition of some metallic or vegetable poison to the food, and unjust accusation, possibly in some instances unjust punishment, has resulted. Now we know that not only the symptoms of gastrointestinal irritant, inorganic poisons, but those of typhoid fever and typhus fever, scarlet fever, and other acute exanthemata, and even those of pneumonia, may be closely simulated by the symptoms induced by infected foods.

The effects of poisonous foods as gastrointestinal irritants are too well known to demand illustrative examples. The production of a continued fever closely simulating typhoid has been repeatedly observed. The following brief abstract of a case reported by Gaffky will serve as an illustration:

D., the chemist of the Hygienic Institute at Giessen, did not feel well on the morning of October 10th, but in company with assistant B. he visited Frankfort. During the day he had a severe headache, no appetite, and frequent chilly sensations. On returning to Giessen at night he was scarcely able to walk. On the next day he refused all food, was slightly delirious, and had one watery stool. On the 13th his condition showed serious infection. His face was red, his eyes sunken, his temperature 105.2°, and he lay in a half-unconscious state. The tongue was heavily coated; the abdomen distended and painful on pressure. He had five dark-brown, later greenish, stools. The urine was concentrated and contained 2 per cent. of albumin, as determined by Esbach tubes; it gave the diazo-reaction and the indican-reaction and contained white blood-corpuscles and numerous granular casts.

From the 13th to the 17th the patient was stupid, but not delirious. The abdomen was greatly distended and from 20 to 24 stools were passed each day, with great tenesmus. The temperature remained high notwithstanding repeated one-gram doses of antipyrin. Sleep was broken and one gram of sulfonal was given at night. The urine remained as before, and the pulse varied from 92 to 100.

From the 18th to the 20th the mental dulness was less marked. Appetite was somewhat improved and the number of stools decreased to from 8 to 10 in 24 hours. The amount of albumin in the urine was somewhat decreased and microscopic examination showed fatty casts and white blood-corpuscles. Small doses of opium were given by mouth and in suppositories.

On the morning of the 21st hemorrhage from the bowels, about 300 c.c. in amount, occurred. Several doses of opium were given and ice-bags were kept on the abdomen. After the hemorrhage there were three slightly bloody stools. From this time the improvement was slow, but fairly constant. The fever disappeared October 29th.

After recovery, marked anesthesia of the anterior surface of the thigh developed and remained for some weeks, the anesthetic area gradually becoming smaller. The hair fell out, mental activity tired, and the eyes were easily fatigued for some months. Two workers in the same laboratory were affected in the same manner, but less severely. The only food or drink which these three men had in common was some uncooked milk taken on the morning of October 9th. D. ordered the milk sent to the laboratory, drank the greater part of it himself, giving B. a small cupful, and the servant drank a little left by the others. The cow that gave this milk was suffering from a bloody diarrhea. Gaffky found in the stools of the cow and in those of the patients a small highly virulent form of the bacillus coli, and to this he ascribes the ill effects. He supposes that some of the liquid discharges from the cow fell on the udder and thus found its way into the milk.

Gaffky suggests that the epidemic in Christiana in 1888, in which 6000 persons sickened within three weeks, was probably due to milk-infection. Hausemann states that this epidemic was regarded as *morbus sui generis*. It was evidently neither cholera nor typhoid fever. Half of those affected were children, and yet nurslings escaped altogether. However, milk, as an etiologic factor, seems not to have been considered by the attending physicians.

A case of food-poisoning resembling scarlet fever was seen by one of us two years ago and may be briefly reported as follows:

K., a very vigorous man of 34, ate freely of canned salmon. Others at the table with him remarked that the taste of the salmon was peculiar and refrained from eating it. Twelve hours later K. began to suffer from nausea, vomiting, and a griping pain in the abdomen. Eighteen hours after he had eaten the fish, Dr. Vaughan saw him. He was vomiting small quantities of mucus, colored with bile, at frequent intervals. The bowels had not moved and the griping pain continued. He was covered with a scarlatinous rash from head to foot. His pulse was 140, temperature 102°, and respiration shallow and irregular. The stomach and large intestines were washed out thoroughly, and ten grains of calomel, soon followed by twelve ounces of solution of magnesium citrate, were administered, for the purpose of cleansing the small intestines. After these medicines had acted freely, K. began to improve. The next day the rash had disappeared, but the temperature remained above the normal for four or five days, and it was not until a week later that he was able to leave his house. The remainder of the salmon was submitted to various tests. The absence of inorganic poisons was demonstrated. It was found that the subcutaneous injection of twenty drops of the fluid expressed from the salmon caused evident illness and suffering in a white rat. The only germ that could be found either by direct microscopic examination or by the preparation of

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plate-cultures was a micrococcus, and this was present in the salmon in great numbers. This germ grew fairly well in beef-tea, but the injection of five c.cm. of beef-tea cultures of different ages failed to affect white rats, kittens, or rabbits. However, this micrococcus when grown for twenty days in a sterilized egg, after Hueppe's method of anaerobic culture, produced a most potent poison. The white of the egg became thin, watery, markedly alkaline, and ten drops sufficed to kill white rats.

The resemblance of the symptoms of food-poisoning in some instances to epidemic pneumonia is well illustrated in the Middlesborough pneumonia-epidemic which has been reported by Ballard and is too well known to require further mention, except to state that 490 deaths resulted.

That Winckel's disease, a septic pneumonia, may be due to infection of the food with the bacillus enteritidis first discovered by Gärtner in poisonous meat has been demonstrated. Lubarsch has reported such a case in an infant.

The stools were greenish and of bad odor. The child became cyanotic and the respiration increased to sixty per minute. Auscultation and percussion were negative in results. The breathing was wholly costal and the abdomen distended. The urine contained neither albumin nor hemoglobin. Postmortem examination showed pneumonia of the left lower lobe, bilateral purulent bronchitis, atelectasis of the right lung, parenchymatous cloudiness of the kidneys, fatty infiltration and engorgement of the liver, and slightly enlarged spleen. All other pathologic conditions were believed to be consequent upon the septic pneumonia. Plates made from the diseased organs developed only the bacillus enteritidis.

It is quite impossible to draw any sharp line between intoxication and infection in the study of the symptoms of food-poisoning. Some of the bacterial poisons are slow in inducing their effects, and even when a germ-free preparation is used in our experiments upon animals, it sometimes happens that many hours elapse before any effects are observed, even in cases ultimately terminating fatally. The relation of the germ to the production of the untoward symptoms may, according to the case, be stated in one or the other of the following ways: (1) The chemic poison is generated only and wholly in the food before it is taken; (2) The infecting organism may begin the elaboration of its poisonous products outside, and continue the same within, the body; (3) The infection may not result in the production of poisons until the food is taken into the body. The first of these conditions is well illustrated by the "Iron Bridge" cases reported by Ballard. The infecting germ would not grow at a temperature above 86°. Of course animal inoculations with this germ were wholly without result, but cultures grown at 60° were markedly poisonous. It is probable that this condition holds good in a larger number of instances than we suspect. The second condition is the one existing in some cases of poisoning with milk and its products. However, in these the infecting microorganisms do not thrive in the body unless they be supplied with the food especially suited for them. The complete withdrawal of milk as a food leads to their speedy disappearance. The violent vomiting and purging which result are curative means and should not be checked unless there be danger of death from exhaustion. The most dangerous cases of cheese-poisoning are those in which vomiting and purging do not occur. Some months ago one of us saw some twenty persons who had been poisoned with cream. All but two were vomiting and purging and complaining most vehemently. These were sure that they would die. The two exceptional ones were uttering no complaints. In fact, they were practically comatose, and thorough washing out of the stomach and intestines was resorted to before they realized that they were in danger.

When the third condition mentioned exists, a true infection results. Such is the case most probably in those instances already cited as resembling typhoid fever and pneumonia.

We have been frequently called upon to examine food suspected of having caused untoward effects, and the method followed in these examinations may be of some interest. Whenever there is the slightest possibility that a metallic poison may be present, tests for the same are made. This is always done with canned foods. However, when a teaspoonful or less of ice-cream causes vomiting and purging, the idea that these effects can be due to zinc sulphate dissolved in the freezer or to artificially prepared vanillin used in flavoring is simply too preposterous to be entertained by anyone acquainted with the quantities of these substances necessary to induce such effects. Ten years ago we went through with all the tests for metallic poisons in many samples of poisonous cheese and ice-cream, but we no longer waste our time in this manner.

The examination of foods for bacterial poisons cannot be made except in a properly equipped bacteriologic laboratory. It is our purpose to merely point out at this time the methods that may be followed. We take it for granted that the one who undertakes work of this kind is already familiar with the ordinary technic of bacteriologic research. The line of procedure will vary somewhat with the kind of food to be examined, the form in which it has been prepared, and the quantity supplied the analyst. All samples should be examined with as little delay as possible after the article has become the object of suspicion. When delay is unavoidable, further bacterial growth should be retarded in the meantime as far as is possible by keeping the suspected article at a low temperature.

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Germs not present at the time of the supposed poisoning may be accidentally introduced, or non-toxicogenic bacteria may multiply to such an extent that the detection of the harmful organisms is rendered impossible.

As a rule, the quantity of the food supplied the analyst is not sufficient to allow of the detection or the isolation of the chemic poison directly. To try to find the poison in a few ounces of cheese or a small bit of meat by direct extraction is a task that would be undertaken only by one quite ignorant of the nature of these poisons. In all but exceptional instances in which many pounds of the food are supplied, the portion that reaches the laboratory can only be regarded as the bearer of the germ to the activity of which the poison is due. This germ must be detected, isolated, grown in pure culture, and its toxicogenic properties demonstrated upon lower animals. It should be clearly understood that the most thorough study of the morphologic characteristics of the germ and of the chemic properties of the poison will not suffice without an accompanying determination of the toxicologic action of the cultures. The infectious nature of the bacterium should also be studied.

It should always be borne in mind that the article of food has probably been through several hands before reaching the analyst, some of which may not have been germ-free. In the examination of pieces of meat and cheese, the surface should be sterilized with a broad, heated knife or other piece of iron. It has been shown that bacteria deposited on such surfaces penetrate slowly. Then with other sterilized knives sections should be made and one or more small bits taken from the interior should be placed in sterilized bouillon. Not less than a dozen tubes should be inoculated in this way. Three of these should be grown aerobically at ordinary temperature; three anaerobically at the same temperature; three aerobically at 37°C.; and three anaerobically at 37°C. It is quite essential that all these conditions of growth should be tried. Some of the toxicogenic germs grow best at relatively low temperature, from 20° to 25°C., and fail wholly to develop at 37°C. Others have their optimum growth at the last-mentioned temperature. Some develop only when freely supplied with air, and others only when the air is excluded.

In the examination of liquid and semi-liquid foods, such as milk, custard, cream, broths, and jellies, small bits or a few drops should be placed in sterilized bouillon and grown under the conditions already mentioned.

A growth having appeared in one or more of these tubes, the bacteria should be examined in hanging drops and in stained mounts. If more than one organism be present, plate-cultures should be made and each germ should again be grown under the conditions mentioned.

The infectious character of each organism should be tested on the lower animals: (1) by feeding, (2) by subcutaneous inoculation, (3) by intraperitoneal inoculation, and (4) by intravenous inoculation. The animals generally employed in these experiments are white mice, white rats, guinea-pigs, kittens, and rabbits. A given germ may be toxicogenic to one of these animals and not to the others. Mice and kittens are specially suitable for feeding-experiments. Young kittens are quite susceptible to most of the bacterial poisons found in milk and its products. The quantity of the bouillon-culture, 24 hours old or older, first employed should be relatively large, from one to ten c.cm., according to the animal and the method of infection. If these amounts prove active, smaller quantities should be tried until the limit is reached.

Next, the action of cultures from which the bacteria have been removed by filtration through porcelain should be tested, and, if these prove active, the effect of different degrees of heat on the toxicity of the cultures should be determined.

If by the experiments already mentioned a toxicogenic germ has been discovered, its morphologic, cultural, tinctorial, and pathogenic properties may be studied as thoroughly as the investigator may desire. The study of the bacterial poison may also be carried to the same extent.

The following reports are taken as illustrations of the results obtained by the method given:

Dec. 31st, 1894, Dr. Traver, of Somerset, Mich., was called to see the family of Mr. Van Allen. He found the father, mother, and two children suffering from protracted vomiting and marked exhaustion. There was no fever and no diarrhea. Tyrotoxicon-poisoning was suspected, but inquiry showed that their supper had consisted of bread, butter, tea, dried beef, and raspberry-sauce. There was nothing in the appearance or odor of the meat to cause any suspicion. In fact, it seemed to be of exceptionally good quality. Anaerobic cultures from the interior of the meat were made and developed a bacillus, from two to three times as long as broad, taking the ordinary stains well, motile, with no spore-formation, not liquefying gelatin, but coagulating milk, growing best at the temperature of the body, but developing its poison at ordinary temperature, producing gas abundantly, and pathogenic to white rats, rabbits, and guinea-pigs. Sterilized cultures were also poisonous.

Of a large number of men at a banquet at Sturgis, Mich., April 26, 1894, everyone who ate of the pressed chicken served was made sick. Some who were not at the banquet, but who aided in preparing for it, ate small bits of the chicken, and were also sick. All were attacked, within from two to four hours after eating the chicken, with nausea, violent griping, and purging; many fainted while attempting to arise from bed.

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The chickens were killed Tuesday afternoon, picked and left hanging in the market-room (not in a cooling-room) until Wednesday forenoon, when they were drawn and carried to a restaurant and here left in a warm room until Thursday morning, when they were cooked (not very thoroughly), pressed, and served at the banquet that night. Those who ate of the unpressed chicken were also made ill.

The pressed chicken contained two microorganisms, a slender bacillus, from four to five times as long as broad, and a streptococcus. The bacillus was fatal to white rats, guinea-pigs, and rabbits when administered intraperitoneally, intravenously, and subcutaneously. The streptococcus was not fatal when given in pure cultures, but mixed cultures of the two induced death, and in these instances, when administered subcutaneously, in addition to the lesions formed after the employment of pure cultures of the bacillus, there was extensive sloughing. This bacillus is motile, takes the ordinary stains readily, and is decolorized by Gram's method. It grows very slowly at ordinary temperature and rapidly at 98°F. Of two cultures of equal age, one grown at ordinary temperature and the other at 98°F., one c.cm. of the former was necessary to induce death, while one-fourth c.cm. of the other proved fatal. The anaerobic cultures were much more powerful than the aerobic. On gelatin-plates exposed to the air the growth was slow, while on those kept in an atmosphere of hydrogen it was much more rapid. Spores could not be detected. The bacillus coagulates milk and decolorizes litmus-gelatin. On potatoes it forms a dirty, thick, slimy growth. It does not liquefy gelatin and the production of gas was not observed. Streaks on agar-agar are yellowish white, slimy, and with but little tendency to spread. One half c.cm. of a beef-tea culture heated to 140°F. for 30 minutes killed guinea-pigs. One c.cm. heated to 212° F. for 15 minutes failed to kill. Animals inoculated by the methods mentioned showed evidences of abdominal pain within from one to two hours and several were found dead after twelve hours. The abdominal cavity was found filled with a clear fluid, the bloodvessels were much congested, and the peritoneum inflamed. In some instances a bloody fluid was found in the pleural cavity.

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## CASES ILLUSTRATIVE OF THE CHARACTER AND TREATMENT OF EXOPHTHALMIC GOITER AND ITS CONGENERS.

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ALTHOUGH the designation exophthalmic goiter expresses two of the more important symptoms of the affection known by this name, it does not indicate the real nature of the malady. The functional disturbances that make up the morbid complex in its fullest form—the quaternary of symptoms—may be wanting in part, and yet the case be typically developed in respect of those that appear. Exophthalmos is rarely entirely absent, but it may be little more than a staring expression without any alteration in the muscular co-ordination of the movements of the eyelids and the globe; the thyroid tumor is hardly discernible sometimes, and the tachycardia and the pulsation of the cervical vessels may not be sufficiently obvious to attract attention. The one condition, however, that serves to unite the various symptoms into an actual complex, is the state of the sympathetic system, or of that part of it having more immediately to do with the circulatory apparatus. The clinical facts as well as the results of treatment show a paretic state of the cervical sympathetic dependent on some change in the thyroid body. The cases to be described exhibit this relation, and the results of treatment based on this conception of their character.

CASE I.—*Curative effect of the treatment as shown in the condition of the patient three years after apparent cure; galvano faradization of the cervical sympathetic and of the pneumogastric nerve; internal use of duboisin, picrotoxins, and iron and manganese, etc.* A young lady of about 20, after a winter of much social excitement, following convalescence from rheumatism, began to fail in strength and became pale and anemic, exercise causing distress of breathing and tumultuous action of the heart. Her eyes put on a brilliant expression, and although naturally prominent, became staring and then protuberant, and a goiter formed on the right side, soon assuming large proportions, and involving the isthmus and also the left lobe. The action of the heart became rapid, remaining above 100 continually, and paroxysms of irregular palpitation occurred at frequent intervals, during which the pulse beat rose to 170 and even higher. Several years before these symptoms appeared she had an attack of acute rheumatism which left the heart damaged, a well-marked mitral murmur continuing afterward, and to this was now added the usual murmurs and venous hum of anemia.

When she presented herself at my office, the case was a typical example of exophthalmic goiter, and no condition was wanting to make the clinical picture complete. The quaternary of symptoms—the exophthalmos, the enlarged thyroid, the tachycardia, the pulsation of the vessels—were all present.

Although changes in the structure of the heart are often present, they are not essential—only functional derangements are necessary to make the case a consistent one.

In considering the question of treatment, I resolved to carry out a plan with which I have usually succeeded—namely, galvano-faradization of the central nervous apparatus—the cervical sympathetic and the pneumogastric. The combined current—stabile—was applied daily from 10 to 15 minutes in duration for a year, excepting intermissions in her

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attendance, amounting to about three months of that time.

Considerable skepticism, I am fully aware, exists in respect to the real effects of this central electrization, and, on the other hand, extravagant claims have been put forward. My own experience is favorable to this mode of treatment in cases of the kind in question. It may be assumed that if a remedy on each application manifests a power of a curative kind, although transient in effect, some permanence of result may be expected by persistence in its use. In this case, as in many of a similar character, when I have passed the current from the neck to the epigastrium, there ensued an immediate diminution in the number of the cardiac pulsations, and a distinct rise in the tension of the vascular system. Frequent repetition of the impression presently secured a permanent gain in the condition of the apparatus concerned.

The effects of galvano-faradization were supported by the administration of duboisin, picrotoxin, eserin, arsenic, manganese, and iron. The curative effects of these remedies were enhanced by hygienic measures, including a suitable diet, systematic exercise, and change of scene and associations. The improvement manifest from the outset soon became pronounced, and after some months recovery ensued. By recovery is meant the complete disappearance of all of the symptoms, with restoration of the health. Whether the mitral lesion has, also, disappeared I am unable to say, as I have had no opportunity of ascertaining the state of the heart by physical examination, but, as no rational signs are visible, compensation must, at least, have taken place.

CASE II.—*Disturbed circulation of the head and neck; flushing of the face and forehead; fulness of the head and exaggerated intracranial tension; persistent occipital pain; vertigo; staring eyes; rapid circulation.* This patient was a lady of 42, of full habit but not obese, in apparently high health, but suffering from headache, vertigo, occipital pain, and wearing glasses to correct visual troubles which were supposed to cause the head-symptoms. Every mental emotion was immediately represented by a more or less vivid flush extending over face, forehead, neck, and upper part of the chest. With the flush she experienced a sense of tension of the brain, and some occipital pain. Her eyes at the same time became suffused, and had a hot and tensive feeling. Any considerable use of her eyes caused burning, and vision became blurred. A variety of glasses adapted by an accomplished ophthalmologist failed to relieve the ocular symptoms, although persistently tried. Her eyes continued to have a staring expression, and were irritable from use. Her vision was good, barring some astigmatism. The movements of the ocular globe and of the eyelids were coordinate, and there was no ring of sclerotic visible above the iris.

The thyroid body was not enlarged. There were, however, persistent increase of heart-beat above the normal, and more or less constant pulsation of the cervical vessels, with paroxysms of more rapid action. Her morning temperature was 99° F. The tension of the radial and temporal arteries was above normal, but the condition of "rigid arteries" was not the cause; rather an overaction of the vasoconstrictor fibers, supplemented by a more rapid circulation, is, as I conceive, the true explanation.

During the period of suffering from the symptoms described, the eye-strain was supposed to be the real cause. The patient had no uterine disorder, nor, strange to say, had it been suggested to her to submit to some radical gynecologic operation.

The diagnosis lay between eye-strain as a cause of the visual and other disturbances and exophthalmic goiter incompletely developed.

The ocular headaches due to eye-strain arise from errors of refraction, errors of accommodation, and from defects in the extrinsic muscles of the eye. Of the errors of refraction that cause headache, the most common is hypermetropic astigmatism, and next in frequency is hypermetropia, but neither of these seemed to me to be in question here. According to some ophthalmologists, myopic astigmatism is a frequent cause, and even a slight degree of this defect may give rise to severe headaches. When the refraction of the two eyes is unequal hemicrania results, but the pain may also be diffused generally. The errors of accommodation causing headache may be due to paresis or paralysis or spasm of the ciliary muscle, and these conditions may depend on various causes of debility. Errors of the extrinsic ocular muscles, causing headache, are chiefly due to insufficiency of convergence. It is probable that none of these causes of eye-strain, if they existed, remained uncorrected. It may be assumed, therefore, that, as the symptoms persisted, some other influences were in operation, and that other measures beside correction of visual defects were necessary. That state of the vascular system which we find in exophthalmic goiter, in the absence of the exophthalmos and the enlarged thyroid, seemed to me responsible for the headache, the heavy tensive feeling, the occipital pain, the vertigo, and other symptoms.

The results of treatment confirmed this view; in other words, the therapeutic diagnosis harmonized with the results of treatment. The symptoms were promptly relieved by the administration of liquor barii chloridi, five drops every four hours. The high color, which had been constantly present, and the vivid flush, which appeared on every emotion, the staring expression of the eyes, and the tensive headache disappeared, the orderly balance of the circulation being restored. It seems to me, therefore, that the symptom-group manifest in this

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case did not originate in any ocular defect, but the supposed eye-strain was one sign of a condition created by a functional derangement of the sympathetic. The study of this and analagous cases has seemed to me to illustrate how similar troubles occur at the climacteric period, and are due, no doubt, to corresponding causes.

CASE III.—*Goiter of several years' standing; persistent weakness and anemia; wasting; pulse habitually rapid, and occasional attacks of palpitation; efficacy of thyroid-extract.* This lady, 35 years of age, after her first confinement, experienced an enlargement of the thyroid of the ordinary character. After her second delivery, the growth assumed larger proportions, and now after ten years it is increased somewhat. The right lobe of the gland is the larger, but the isthmus projects forward, and has the elastic condition of a cystic growth. The tumor must, therefore, be regarded as glandular and cystic. Beside the slow increase in size, it has been observed to fluctuate in size, becoming larger at the menstrual periods, and lessening in size in the intervals.

Although pale and anemic, the patient's face, neck, and upper chest were quickly flushed by even a transient mental emotion. Her eyes were prominent and had a rather brilliant expression, but there was no exophthalmos. The enlarged thyroid had no pulsatile thrill or movement, nor was there a pronounced beating of the cervical vessels. The action of the heart was constantly rapid. The pulse-rate was habitually about 90, and any mental or physical effort sent it above 100 per minute. Her temperature was never under 99° F. These symptoms had been present for several years, but had so increased within the past year as to render motion or action unpleasant. She walked up-stairs with the greatest difficulty, and she got out of breath so quickly that she had lately abandoned all outdoor walking. Her body-weight declined from 152 pounds to 117. The menstrual function was irregular in time and scanty in amount, there being usually but a mere "show," and the intervals were two and three months in duration.

There could be no question that in this case there was a morbid complex having the usual characteristics of exophthalmic goiter. The eyes, it is true, were only brilliant and staring, but not obviously protruding, but the other symptoms, to complete the quaternary, were present. Although the historic picture was thus complete, the manner in which the malady developed was unlike the usual course in this disease. The structural changes in the thyroid body, we may suppose, stopped the production of the peculiar principle whose absence leads to the derangement in the functions of the cervical sympathetic. It seemed necessary therefore to supply this principle by the administration of thyroid-extract.

Galvano-faradization of the central apparatus—the cervical sympathetic, and the pneumogastric—the stabile method descending, was carried on for several months, and after some preparatory treatment intended to increase excretion, consisting of a nightly dose of pilocarpin, and three times a day fifteen grains of sodium iodid; the action of manganese, arsenic, and iron was maintained for several months. A marked improvement slowly ensued. The patient gained many pounds in weight, the menstrual function reappeared in the regular way, and the bodily strength and action were fully re-established.

When she had thus reached a point from which her recovery was to be expected, she was attacked with acute rheumatism, involving the joints of the right lower and left upper extremities, but especially affecting the left wrist and hand, which remained stiff and painful several months after the pain and fever had disappeared. Notwithstanding this mishap, which necessarily reduced her strength and nutrition, the improvement secured was maintained, and even the enlarged thyroid, except its cystic part, continues to diminish.

In the treatment of this group of cases, the remedies were adapted to that view of their pathology in which disordered states of the cervical sympathetic regulating the blood-supply, and of the pneumogastric regulating the heart's movements, are especially concerned. The lesson which they especially teach is that neither the relief of eye-strain nor the use of neurotics, will remove the symptoms. These cases further show us that the flushings and other phenomena of the climacteric period may be due to similar disturbances, and are to be relieved by a resort to the same kind of remedies.

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## THE VALUE OF INFILTRATION-ANESTHESIA.

BY WELLER VAN HOOK, A.B., M.D.,
OF CHICAGO.

THE use of cocain in local anesthesia was at first followed by the most satisfactory results in operations upon the mucous membranes, the resorptive powers of which facilitated the application of the drug directly to the nerve-endings. In imitation of this natural method of reaching the sensory nerves, hypodermic injections of the same solution were readily thought of, and at once it became a practice, which is still popular, to inject strong solutions of cocain (from 2 to 10 per cent.) into the subcutaneous lymphatic spaces. The best results by this method are obtained when, as in the finger or penis, the return-circulation can be interrupted by circular constriction, and the entire dose be retained as a depot of anesthetizing material. Corning has used hard rings pressed upon flat skin-areas, in order to similarly interrupt the circulation of the fluids that tend to carry away the anesthetizing substance. Under this practice there are three zones of sensory nerve-activity—a zone of complete anesthesia corresponding to the area in which the cocain is in sufficient concentration to completely overcome the

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sensibility of the nerve-endings and filaments, a zone in which sensation is partially inhibited, and an area in which the anesthesia gradually fades away.

It was easily seen that if by osmosis or by the mechanic movement of fluids the cocain were brought into contact with all the nerve-structures in approximately one degree of concentration, and if this concentration were exactly that required to inhibit nerve-action, the desired result would be accomplished with a minimum quantity of the drug.

Liebreich has shown, however, that the injection of simple water into the tissues in such a way as to produce an artificial edema would induce with some discomfort a transitory anesthesia. C. L. Schleich found that by combining a small quantity of cocain with a weak salt-solution the discomfort was removed and the anesthesia prolonged; and it only remained to add a little morphin to the solution to prolong the beneficent action sufficiently to give opportunity for the performance of surgical operations. Anesthesia depends, in this method, upon the artificial ischemia established; upon the high pressure to which the tissues are subjected; upon the lowered temperature brought about by the introduction of the cool water; and, finally, upon the direct action of the anesthetizing drugs. Leaving aside alleged personal disinclination on the part of European clinicians to adopt the method of Dr. Schleich, it seems to me that the failure of the infiltration-method up to the present time to become popular depends upon the fact that a special technic is required. This technic is, however, so simple and easy that American physicians, I am sure, need only read an account of it to understand and practise it. And, as local anesthesia can be induced by it in a few moments for the opening of abscesses, furuncles, or carbuncles, for the removal of a prepuce, or for the amputation of fingers, or even of the forearm, with the use of a solution of *one part of cocain in a thousand of water*, every intelligent worker must grant its advantages and apply it in practice.

The materials required for the procedure consist of a weak solution of cocain, morphin, and common salt, in sterilized water at the temperature of living-rooms, and a good ordinary hypodermic syringe. The formula for the solution is:

℞.—Cocain hydrochlorate . 0.1 (gr. iss).
Morphin hydrochlorate . 0.02 (gr. ⅓).
Sodium chlorid . . 0.2 (gr. iij).—M.
Fiat pulv.

Sig.—To be dissolved in 100 grams (℥iij–℥iij) sterilized water.

One will find it convenient to carry with him in his minor operating case a number of such powders, one of which can easily be dissolved in water, so that the solution is always fresh. Should the solution be kept for some days before being used, two drops of 5 per cent. phenol should be added to it.

Two other solutions are recommended—a stronger one containing double the quantity of cocain and a weaker solution containing only one-tenth the quantity of cocain. The very strong solution is useful for inflammatory lesions, the weak solution for prolonged and extensive operations; but for most cases the medium solution is best adapted.

It cannot too strongly be insisted that the value of these simple materials lies almost wholly in their application. The hypodermic syringe is to be used to fill the tissues to distention with the anesthetizing fluid. The needle is first introduced into the skin at the desired point, the syringe being held almost parallel with the skin. The first essential point for the beginner to learn is that the point of the syringe must not be pushed through the skin, as in administering an ordinary hypodermic injection of morphin, but must stop within the skin, so that the fluid when pressed out by the piston will distend the skin itself, raising a white, bloodless wheal somewhat like a mosquito-bite.

The author of the method, wishing absolutely to free his process from all pain, freezes the skin at the sight of the first puncture. This is easily done with ethyl chlorid, or with a spray of ether from an ordinary hand-atomizer. But the pain caused by introducing a hypodermic point is so small that I have never used the spray, especially as the application of cold is itself very unpleasant.

The area thus infiltrated is instantly anesthetic, and may be incised, punctured, or cauterized without sensation, so long as neighboring areas not yet rendered edematous are not interfered with. And this leads to the second imperative injunction upon the beginner—be sure the area you wish to operate upon is thoroughly infiltrated. The obvious converse to the proposition that the infiltrated area is anesthetized is that when pain is produced it is due to the operator's carelessness in not infiltrating the tissues incised.

The first small area having been anesthetized, it only remains to infiltrate a sufficient number of new circles adjoining the first to include the field of operation; and, as the first area is devoid of sensibility, the neighboring skin can be made edematous by painlessly inserting the needle near the edge of the wheal and forcing the fluid into the tissues from this insensitive point of vantage. Having repeated this process often enough to anesthetize the skin-area, the subcutaneous tissue is squirted full of fluid by passing the needle through the anesthetized skin. The fasciæ, muscles, and periosteum must be carefully anesthetized in the same way, and the operation may then be begun. It is needless to say that these proceedings are always to be carried out aseptically, the syringe and the water used being sterilized be-

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fore being used. The anesthesia lasts about twenty minutes. If the operation is not finished in time the infiltration can be repeated.

Several simple but important points must be borne in mind in order to insure success under special circumstances. Of these, probably the most important is that inflamed tissues are hypersensitive and must not themselves be infiltrated until the neighboring normal tissues have been anesthetized. For example, to inject fluid into the apex of a furuncle without preparation would be a cruelly painful procedure; but if the operator carefully anesthetizes the skin all around the boil before infiltrating the inflamed structures, he will be able to open the suppurating focus absolutely without pain. Schleich is in the habit of advancing upon such abscesses from two foci upon opposite sides of the seat of infection.

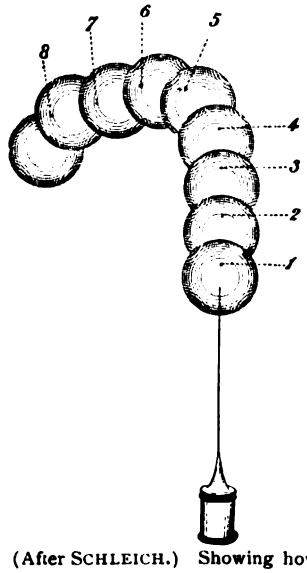


Diagram I. (After SCHLEICH.) Showing how the successive wheals are raised, the point of the syringe being inserted at the points marked by the dots.

I have found it necessary to use the finest and sharpest needle-points in working on such delicate tissues as the skin and mucous membrane of the prepuce, since, if the needle is pushed a trifle too far, the fluid lodges not in the skin, but under it, leaving the cutis sensitive. By observing this precaution I was able to avoid a general anesthetic in removing an inflamed tight foreskin from a man 72 years of age.

When large nerve-trunks have to be severed, a drop or two of five per cent. phenol is recommended to be injected as nearly as possible into the sheath of the nerve.

In amputating digits the infiltration should be begun from two points at opposite sides of the member, the infiltration being continued all along the line of proposed incision, and the deeper tissues, including the periosteum, being infiltrated with great care.

Recently I had occasion to extract a large, loose body from a man's knee-joint. After infiltrating the skin and subcutaneous areolar tissue, the capsule of the joint was similarly infiltrated, and with no pain whatever the joint-body—about 1½ in. long—was removed. The wound was sutured and the patient made a good recovery.[1]

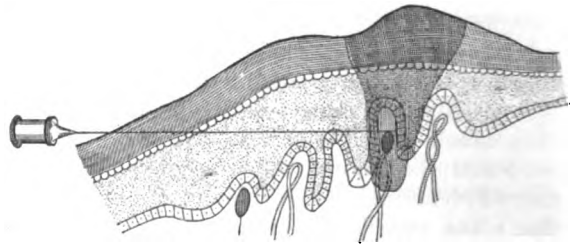

Diagram II. The syringe-point stops at the papillary layer and the fluid lodges in the skin itself.

At my request, Dr. A. F. Lemke, interne in the Cook County Hospital, has used this method in minor cases. His reports are quite satisfactory, numerous abscesses having been opened and a number of infected inguinal glands having been removed.

The most serious case in which I have practised the method was that of an operation (upon Dr. L.) for varicocele. Without my knowledge the doctor had taken so large a dose of whisky that he was in a state of hilarity, which interfered with the application of the anesthetic. Nevertheless, the veins were ligated through an incision an inch long; and, as the scrotum was very long and lax, it was amputated. The extensive wound was sutured. The pain felt was slight, and, I think, would have been almost

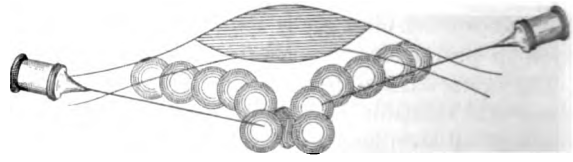

Diagram III. (SCHLEICH.) Showing mode of injecting the fluid under an abscess.

none at all if the patient had been in such a mental state as to give warning when imperfectly anesthetized areas were encroached upon.

Schleich has performed a number of celiotomies under infiltration-anesthesia, removing ovaries and tubes, etc. He will find few imitators in any but the most uncomplicated cases. But everyone will see the advantage of dispensing with general anesthesia

[1] This case was reported, with my permission, in the "Annals of Surgery," September, 1895, p. 328, Case II.

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when abscesses originating in the appendix vermiformis are adherent to the abdominal walls and require simple drainage. Perhaps in no cases is local anesthesia more desirable in preference to general narcosis than in the primary opening and drainage of empyema-cavities, since even ether-anesthesia is dangerous when the thoracic viscera are compressed.

103 STATE ST.

## SOME THERAPEUTIC (SURGICAL) NOTES.

BY ROSWELL PARK, A.M., M.D.,
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### A NEW EXPEDIENT FOR DEALING WITH TOUGH AND INTRACTABLE STRICTURES OF THE URETHRA.

I HAVE recently had to deal with a long-recurring, exceedingly dense, and tough cicatricial contraction of the urethra, through which, after tedious effort, I succeeded in passing a filiform whalebone-bougie. Over this, as a guide, I endeavored to pass a variety of urethral instruments, but could coax nothing in the shape of a metallic instrument through the dense tissue. I then opened the deep urethra by perineal section, having the fine whalebone as a guide. Over the slightly bulbous extremity of this filiform bougie I tied tightly a piece of fine, braided silk. Withdrawing this through the urethra in a forward direction, I pulled through with it the silk, which I then proceeded to utilize as a fine chain-saw, in the same way that Abbe has succeeded in attacking esophageal strictures. With the fingers of one hand in the deep perineal opening, and with the other hand free outside, I could pull the silk backward and forward. Using it in this way as a very fine chain-saw, I succeeded in enlarging the canal. After repeated efforts the stricture was divided to a degree permitting a threading of the silk through the eye of a tunnelled urethrotome, which was at last passed down through the urethra, its blade separated, and the obstruction divided without further difficulty.

I am quite well aware that the necessity will very rarely arise for adopting this expedient. Indeed, this is the only time that I have ever failed in passing a metallic instrument over a whalebone, when once it had been made to find the passage. Possibly in this instance further maneuvering would have enabled me to adhere to former practices. So soon, however, as this expedient suggested itself, and was tried, I found that I saved time and accomplished my purpose more speedily, and consequently more easily for the patient, than I had feared was possible. The patient's recovery in this instance was uneventful.

### A NEW AND IDEAL STYPTIC; A NEW COMPOUND OF ANTIPYRIN AND TANNIC ACID.

In THE MEDICAL NEWS of December 15 and 22d, 1894, I rehearsed some of my experiences with antipyrin as a styptic in surgical practice, stating that I had for years used a 5 per cent. solution as a spray, sterilizing the water before making the solution. This I had no hesitation in spraying upon any surface, peritoneal, cerebral, or other, from which parenchymatous oozing was taking place to an extent complicating the operation or jeopardizing the success of an ideal dressing. This therapeutic note attracted at least sufficient attention to lead to its pretty general use by surgeons in various parts of the country, from many of whom I have heard commendatory remarks, and from none of whom I have ever heard of disappointment in its use. The present note is to corroborate the favorable esteem in which I have long held this procedure, and to state that I have since resorted to it more widely and more generally for styptic purposes. Thus, I have no hesitation in using it in the urethra, or even in the bladder, in cases of hematuria proceeding from either of these locations. Even in the eye it may be used without fear, preceding its use by that of weak solution of cocain, though in this location the antipyrin-solutions need not be made so strong. On the other hand, it may be used in much larger percentage when the 5 per cent. solution fails to accomplish the purpose; even when small vessels spurt, compression for a few moments with iodoform-gauze or acetanilid-gauze sopped in this solution will often be effective.

As every physician will realize, there occur cases of bleeding—for instance, from the nasal cavity or from divided bone—in which even these solutions will be ineffective. My present object is to call attention to the *combination of antipyrin and tannic acid*, in solution, by which there is precipitated an intensely agglutinative and cohesive substance, of to me unknown chemic composition, which offers the most ideal styptic for certain purposes that I have ever dreamed of. This combination I hit upon by accident, and first resorted to in a case of apparently intractable hemorrhage from removal of adenoid tissue in the vault of the pharynx, in which I was called in consultation by my colleague, Dr. Hinkel. He happened to have at hand a bottle of alcoholic solution of tannin, while I was provided with antipyrin in powder. The case being emergent, I suggested the combination of the two styptics, and added the dry powder to the solution. To our surprise there was formed at once a gummy mass, at first flocculent, which quickly cohered, the result being a combination, the stickiness and adhesiveness of which quite astonished us. A small sponge dipped into the fluid containing this material in suspension was inserted into the postnasal space, and hemorrhage was instantly checked, not to again recur.

I have since experimented with these materials, and have found that they may be united in almost

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any proportion with the formation of the gummy mass, and would suggest that the substances be mixed in proportion to the emergency of the case, and to the desire for little or much of the resulting compound. It is possible by adding strong solutions, or of pouring the powder of one into the solution of the other, to precipitate so much of the agglutinative composition as to make a gum that may be placed about the margin of the bleeding bone—for instance, in operations upon the cranium. Or a small piece of sponge or cotton sopped in this material may be forced into a tooth-socket, or in various other ways its use may be made to result in benefit and satisfaction. There is but one attendant difficulty: that it is so remarkably cohesive that when the time comes for detachment or separation of the tampon it is difficult to remove it. It may be even necessary to wait for sufficient time for the formation of granulations and separation by natural processes.

I strongly commend to surgeons experimentation with these solutions, and their own determination as to the strength in which it may be best to use them.

MORE WITH REGARD TO MUSTARD AS AN ANTISEPTIC.

In the same issue of THE MEDICAL NEWS to which I have referred, I endeavored to call attention to the remarkably efficient properties possessed by mustard as an antiseptic or sterilizing agent for the surgeon's hands, and for the skin of the part to be operated upon. One never goes into a house, or at least a locality, in which mustard cannot be easily procured, and my custom is to thoroughly rub and scrub my hands with a mixture of green or other soap, corn-meal and mustard-flour, using this for about five minutes. After rubbing it thoroughly into all the crevices and creases of the hands and nails by aid of a nail-brush, one may be absolutely certain that his hands are sterilized, no matter what he may have been doing previously. I have no hesitation in proceeding from an autopsy to the operating-room, if I may thus protect my hands. Used as indicated, the mustard leaves no unpleasant sensation; and one may feel that by the time it produces unpleasant tingling or rubefaction of the skin its essential oil has done its desired work as an antiseptic. I have discarded all other means of preparing the hands, and in several years' use of mustard in this way have never been disappointed, nor had the slightest reason to question its effectiveness. I might add also that it is an admirable deodorizing agent, and will take away from the hands all offensive odor of dead or dying tissues, all redolence of iodoform, etc.

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*Prof. König*, of Göttingen, has been selected as the successor of the late Prof. Bardeleben in the Chair of Surgery in the University of Berlin.

## CARDIAC MURMURS; THEIR DIFFERENTIATION AND INTERPRETATION; WITH SPECIAL REFERENCE TO "ACCIDENTAL" MURMURS.

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THE cardiac murmur is a subject of greatest diagnostic, prognostic, and therapeutic importance, regarding which certain authoritative and popular misconceptions prevail. Authors, especially of the French school, were inclined to draw broadest inferences from the loudness and timbre of heart-bruits, a tendency still manifest.

The loudness of a murmur sustains no invariable relation to the severity of the causal lesion. Guttmann states that the stronger the murmur the more marked is the underlying pathologic alteration, although he admits many exceptions and relies more upon other methods of examination. Dilatation and hypertrophy of a cardiac chamber signify more than a mere murmur of given intensity. I recall an instance of an enormously dilated heart characterized by a very loud, rough murmur, in which, after death, the valves were perfectly smooth. Gradually increasing stenosis and insufficiency frequently present physical conditions under which murmurs disappear. Cardiac examination in the ultimate stage of disordered compensation is often unsatisfactory, as an accurate study cannot then be made. I have observed a case of aortic regurgitation in which the murmur, previously recorded, disappeared three weeks before death. In such cases the diagnosis from myocarditis and kindred affections may be impossible. Valvular murmurs may disappear temporarily during an intercurrent febrile affection or be permanently buried under terminal tachycardia. Loudness bears an important relation to cardiac activity, a fact in which lies a diagnostic suggestion. Loudness may vary from day to day, and intensity alone does not influence prognosis, as a fainter murmur can signalize heart-failure.

Sahli states that standing or sitting intensifies murmurs that are weak in the prone position, while Eichhorst describes endocardial murmurs as becoming weaker or disappearing on standing. I have never been able to demonstrate any constancy between intensity and position, although Eichhorst's practice of examining patients in different positions obviates many errors.

French writers have said much regarding the timbre of cardiac murmurs, and have dogmatized that their acoustic characters determined sclerosis, calcification, or the degree of lesion. Eichhorst deprecates such generalizations, and denies their diagnostic value. Rough, smooth, blowing, or sawing murmurs depend on purely physical condi-

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tions of the valves and bloodcurrent. Particular importance is attached to musical murmurs and those that may be heard at a distance. Aortic and mitral lesions have produced musical murmurs. At autopsies are found perforation of the semilunar valves (Schrötter), abnormal chordæ tendineæ across the ventricle (v. Drozda), torn papillary muscles, or relative aortic regurgitation (Groedel), but often no cause is found. Murmurs *par distance*, heard by the patient himself or by those around him, are musical, singing, or squeaking, and are observed in aortic stenosis (Stokes, Ebstein) and aortic regurgitation, but are sometimes accidental (Ebstein, Eichhorst). During the last year I attended a physician with great cardiac dilatation of arterio-sclerotic origin, in whom a relative mitral regurgitant murmur could be heard from the foot of the bed. It disappeared when rest removed the dilatation. Timbre has, however, a relative significance. Hard, calcified, rough valves often produce rough murmurs, as do also torn chordæ tendineæ, and loosened valves. Aortic regurgitant bruits are soft and blowing, while those of aortic stenosis are harsh and sawing. In mitral leakage the murmurs are loud but short, and in mitral stenosis faint, rolling, rippling.

One of the most important cardiac bruits is the "accidental" murmur, also known as inorganic, accessory, adventitious, functional, hemic, or anemic. Sahli properly objects to calling accidental murmurs inorganic or functional, as they may depend upon functional valvular disturbance; and, beside, not all accidental murmurs rest upon an anatomic basis. He rejects the term anemic, as accidental murmurs may occur from valvular insufficiency even in chlorosis and anemia; and, again, not all accidental murmurs are anemic. The division of murmurs as follows is proposed: 1. Valvular. 2. Functional valvular. 3. Accidental.

We can only speculate as to the pathogenesis of accidental murmurs. There are theories innumerable, but that advocated by Sahli seems most applicable, that the rapidity of the cardiac contraction explains the murmur. In acute anemia, as from hemorrhage, the resistance to the systole is reduced, and accidental murmurs intervene. In chronic anemia the quality of the blood is altered, and thereby the resistance to the systole is reduced, with consequent acceleration and accidental murmur. Cohnheim has produced a cervical venous hum by artificial hydremia.

The differential diagnosis of accidental murmurs is often difficult. Many sweeping statements have been made and criteria established whose unreliability has, in my experience, been conclusively proved.

*The etiologic differentiation.* Accidental murmurs may occur in health. Skoda found them in acute rheumatism, pregnancy, puerperal disease, carcinoma, typhoid fever, smallpox, and anemia. (*Percussion*, S. 212.) They are found in fevers, anemia, cachexia, and inanition from whatever cause. Whatever lowers bloodpressure, relaxes the arteries, and increases the heart's action may produce accidental murmurs.

Groedel affirms that the diagnosis is easy when there is a concomitant venous hum in the neck, which, according to Filatow, accompanies "anemic" bruits. Walshe could not remember an instance of organic heart-disease associated with an anemic *bruit de diable*. Rheumatism may argue for valvular disease. These laws assist in certain instances, but, like all statements that are not absolutely true, fail when infallibility is most imperative. For example, in a case without previous history, with high and somewhat irregular temperature, rapid pulse, diffuse furunculosis, delirium, involuntary evacuations, a dilated left heart, a loud, harsh, mitral murmur, no roseolæ, no diarrhea, no tympany, and no splenic tumor, the diagnosis lay between a late typhoid with an accidental murmur and septicopyemia with cardiac localization. The lack of alteration in the right ventricle turned the scale in favor of typhoid, and the diagnosis was established at the autopsy.

For the same reason the case of a Chinaman with a parotid abscess, meningeal symptoms, high temperature, and a loud, blowing, apical systolic bruit was diagnosticated sepsis without valvular involvement, and was confirmed after death.

Not every murmur observed in anemic patients is inorganic. Many are relative valvular insufficiencies, and Vierordt recounts two cases of pernicious anemia in which the diagnosis oscillated between organic and inorganic murmurs, with a final decision in favor of their functional origin. The autopsy, however, revealed endocarditis and very slight ventricular hypertrophy, the diagnostician having been baffled by concomitant emphysema. Valvular heart-disease may produce a profound secondary anemia, a confusing point rarely mentioned in this connection.

*Physical examination of the heart.* Only physical examination of the heart by methods other than auscultation can determine the status of a cardiac murmur. In organic cardiac disease are found hypertrophy, dilatation, loud or accentuated tones, tones replaced or accompanied by murmurs, and abnormal arterial phenomena, *e. g.*, anomalous sounds, the pulse, capillary pulse, etc. While considerable dilatation may complicate anemia, yet hypertrophy argues for organic change. Dilatation of either or both ventricles in anemia is neither marked nor attended with hypertrophy. Leube says that while the second pulmonary sound may be somewhat accentuated in anemia it is not markedly

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so, nor is it palpable. In neglecting careful cardiac percussion physicians often err. With reliance upon exhaustive physical examination the diagnosis of heart-disease becomes one of the easiest, most satisfactory, and most accurate.

*Systolic and diastolic murmurs.* Regarding the cardiac phase of murmurs, the formal teaching prevails that anemic bruits are always systolic (Finlayson, Flint, Guttmann, and others). While they are usually systolic, such dogmatic statements cannot, I believe, maintain. I have observed and reported cases[1] in which anemic diastolic bruits were heard over the large thoracic and abdominal venous trunks, and functional diastolic murmurs were observed in relative aortic regurgitation. Sahli[2] has recently reported a similar series. A case of chronic cardiac exhaustion from overwork has recently been in my ward in which was heard an apical presystolic murmur, disappearing under rest, digitalis, and purgation. Fisher[3] cites cases of presystolic murmur dependent upon aortic disease, cardiac dilatation (concretio cordis cum pericardio), and once upon hypertrophy and dilatation of the right ventricle. The diastolic and presystolic phase *per se* has been overestimated in the exclusion of inorganic murmurs. I think I may expand Fraentzel's rule that systolic murmurs without other cardiac change do not imply organic disease, and assert that no murmur in itself, whether systolic, diastolic, or presystolic, definitely determines valvular lesion.

*Localization.* Hemic murmurs are heard mostly over the pulmonary area, but are often propagated to the apex. They occur rarely over the aortic and tricuspid valves. Latent aortic stenosis, without murmur or with ventricular change, may simulate inorganic bruits. Vierordt has found inorganic pulmonary murmurs sometimes quite confusing, especially when widely propagated.

Organic mitral lesions may be heard only over the anatomic seat of the valve at the base of the heart, on account of the retraction of the lung from the enlarged left auricle (Naunyn).

*Timbre.* In the earliest days of auscultation, Gendrin described inorganic murmurs as blowing, and sharply separated them by this point alone from the harsher organic bruits. Skoda (p. 212) expressly disagreed with Gendrin and insisted that no special emphasis could be attached to the character of a bruit. Guttmann describes accidental murmurs as being always short and blowing. Sahli explicitly states that a sawing, musical, or blowing murmur is not necessarily—although usually—organic. I have heard numerous very loud and coarse murmurs which were proved accidental by their ultimate clinical course or by postmortem examination. It is usually affirmed that inorganic are not as loud as organic murmurs (Leube, Sahli, and others). The murmurs of valvular disease may become very weak, or pronounced lesions may pass to autopsy without a bruit. Petit characterizes anemic murmurs as superficial, inhalation-like, and dependent on respiration.

Frémissement cataire, thrill, has been claimed as exclusively a sign of organic cardiac disease, a statement to which Eichhorst justly takes exception. V. Bamberger has said that anemic murmurs seldom cover a tone, but rather "hang on to it." Hutchinson's statement that anemic murmurs disappear on lying down has been disproved, although French authors (Petit, Potain) maintain that change of position alters the murmur. This fact cannot have differential value, for organic murmurs behave in the same fashion.

Feeble propagation has been long held as typical of accidental murmurs, but the same is true of mitral stenosis, and inorganic murmurs may be heard par distance. I have heard two anemic bruits in tuberculous cases in which the murmur was transmitted over the entire chest.

Appropriate therapy may differentiate organic from inorganic murmurs. Chalybeate treatment will often remove the anemic murmur and digitalis frequently correct functional valvular insufficiency.

A protracted clinical course will exclude accidental murmurs, which are inherently short-lived.

Hochsinger[1] has found that accidental murmurs do not occur before the fourth year; hence murmurs occurring before that age are organic, even though the physical findings do not concur, *i. e.*, are unattended with hypertrophy and dilatation.

Finally, accidental murmurs are diagnosticated only after logical exhaustive exclusion.

2818 INDIANA AVENUE.

[1] American Journal of the Medical Sciences, October, 1895.
[2] Correspondenz-Blatt. für Schweizer Aertze, June 15, 1895.
[3] Lancet, March 9, 1895.

## PROGNOSIS IN PUERPERAL INSANITY.

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IN no class of cases of insanity is the prognosis so favorable as in those occurring in the puerperal state, either during pregnancy or lactation, the so-called puerperal insanity. Of 69 cases having this etiologic factor admitted to the State Hospital for the Insane at Danville, Pa., during the decade between 1883 and 1893, 53 were considered curable as having a duration of 2 years or less before coming under treatment. Of these latter 32 were classified as mania, and 21 as melancholia. Of the former 28 showed insanity of less than one year's

[1] Die Auscultation des kindlichen Herzens, 1890.

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duration. Of this number 23 were discharged restored, and 1 as so far improved as to give a reasonable probability of complete recovery at home, making a percentage of 85.4 of recovery. Two were discharged not improved, after a residence in the hospital so short as to preclude any hope of change. The ultimate result in these cases is unknown to me. One died on the fifth day after admission, of the exhaustion of acute mania, complicated with septicemia, making the only case in which death was in any degree traceable to the mental disorder. But 1 is known to have become chronic, a percentage of 3.3 on the number of curable cases under treatment.

In the next class of patients, those having a duration before admission of from 1 to 2 years, the results were far less favorable, and emphasize the detrimental effect of long duration previous to treatment in this as in other forms of insanity. Of 4 cases but 1 was restored and 3 are known to have become chronic.

Of the melancholiacs 16 had a previous duration of less than a year. Of these 10 were discharged recovered and 3 improved, a percentage of 81.1. One was discharged not improved after a residence of 2 days, leaving an incurable residue of 3, or 12.4 per cent. Of 5 cases of from 1 to 2 years' standing, 1 was restored and 1 improved, and 3 became chronic.

That the prognosis is favorably influenced by the time that is allowed to elapse before placing the patient under suitable treatment, especially in maniacal cases, is shown in the percentages based upon the duration before admission. Of 21 cases of mania, having a previous duration of less than 3 months, 89.3 per cent. recovered, and none is known to have become chronic, the balance being made up of 1 who died, and 1 discharged not improved after insufficient residence. Of those of from 3 to 6 months' standing, 72 per cent. were restored, while 14 per cent. became chronic. Of those of longer standing than 6 months, 50 per cent. were restored, and 50 per cent. became chronic. Probably on account of the slower nature of melancholia, the influence exerted by treatment in the earlier stages does not seem to be so pronounced as in mania, though the rule holds good. Thus, of 8 cases under 3 months' duration, 75 per cent. recovered and 25 per cent. became chronic. Of 5 cases between 3 and 6 months, 80 per cent. were restored and 20 per cent. discharged, not improved, as stated. Eight cases having a duration of longer than 6 months, gave a recovery-rate of 62.5 per cent., while 37.5 per cent. are known to have become chronic.

The number of previous pregnancies does not appear to be a factor of importance in prognosis, as the results were about equally good in all cases, irrespective of the number of gestations.

Probably of more weight is the question of age at the first attack. Of 3 cases below 20 years of age none is known to have become chronic; of 14 between 20 and 25, 1 became chronic; of 14 between 25 and 30, 1 chronic; of 15 between 30 and 35, 5 or one-third failed to recover; and of those above 35, 3 in number, 1 became incurable.

The meager information obtainable in regard to the character of the labor fails to throw much light upon the influence of this factor in causing mental disturbance. From what could be learned, however, it would seem that in most of my cases the labor was normal, and that the complications incident to childbirth had little to do with the mental difficulty.

In this, as in all other forms of insanity, heredity plays an important part. Despite the well-recognized difficulty in obtaining reliable data as to predisposition, 20 of the 53 curable cases had neurotic histories. This fact does not seem to have exercised an unfavorable influence on the prognosis, as of these 20, 18 recovered, and only 2 became chronic.

## CLINICAL MEMORANDUM.

### *A CASE OF ADDISON'S DISEASE,*

***Treated by Ingestion of the Adrenals of the Sheep. Floating Kidney with Diseased Adrenal Palpable.***

BY CHARLES G. STOCKTON, M.D.,
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ON the 17th of June last there appeared for examination Mrs. P., aged 40, married, and the mother of one healthy child. Her father died at 68 from debility. Her mother, who died at the same age, was never strong; was tall, thin, and very much resembled the patient in every way, and it is said that she suffered from some affection resembling that for which the daughter now sought relief. No other deaths had occurred in the family. There are three brothers and four sisters living and well.

Previous to the advent of the present disease the patient had never been seriously ill, but had always been constipated, and when young suffered from sick-headaches. After her confinement she had some uterine affection. For the last seven years she has suffered from diarrhea, and her strength was thereby so much reduced that it is difficult to determine the inception of her present trouble. At present, and for at least three years past, she has complained of weakness, shortness of breath, palpitation of the heart, loss of flesh, vomiting and diarrhea, great muscular debility and intense bronzing of the skin, which, over the region naturally pigmented, presents the color of dark mahogany. There is also unnatural pigmentation of the mucous membrane of the lips, cheeks, and pharynx.

The patient now weighs 112 pounds; her former weight varied from 130 to 150. She suffers no pain, and, indeed, there are few abnormal manifestations save that she is sleepy much of the time. She has imbalance of the ocular muscles, and doubtless has astigmatism. The pulse is somewhat slow and

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feeble, at times very infrequent, and there is moderate arterial sclerosis. The area of cardiac dulness is slightly increased; the heart-sounds are feeble, but without bruit; on exercise the heart is tumultuous. The capillary circulation is poor, the extremities cold and often clammy. The respiratory apparatus is without apparent fault. She suffers much from sore-mouth; at present there is a deficiency of epithelium, particularly over the tongue. This organ is tremulous, flabby, and shows too much venous engorgement.

During the past year the patient has suffered from regurgitation of food, and that retained shows but little change after having been in the stomach for hours. The gastric contents were aspirated on June 21st, three hours after a test-meal of meat, bread, and water. The food was found all present, water-soaked, and not digested. It was necessary to introduce the tube 25 inches from the teeth in order to empty the stomach. There was slight obstruction to the passage of the tube through the cardia; there was no evidence of digestion. There was an absence of odor and of mucus; the acidity was very faint; hydrochloric acid was absent; lactic acid appeared as a mere trace.

Although occasionally annoying, the diarrhea is not now so much in evidence as in the past. The area of liver-dulness is four inches in the nipple line; the liver lies lower than usual, and is to be felt below the free border of the ribs. The spleen is slightly enlarged; both kidneys are movable, the left distinctly floating. Above the left kidney, closely connected with it, moving with the kidney, yet movable while the kidney is held still, is an irregularly shaped body, about the size of a hen's egg, which is slightly tender upon pressure. It is presumed to be a diseased adrenal.

The examination of a 24-hours' specimen of urine showed that it was highly acid, brownish, cloudy in appearance, its specific gravity 1025, without albumin or sugar, a moderate reaction for indican, and no reaction for urobilin or bile. The total amount passed is 832 c.cm., containing 18.30 grains of urea. Microscopically, nothing of importance was revealed. Examination of the blood showed 1,800,000 red corpuscles to the cubic millimeter. There was 30 per cent. of hemoglobin present; there were many megalocytes and macrocytes and marked poikilocytosis. The lymphocytes were present in large numbers.

Previous to the examination described the patient had, for some months, been taking iron and arsenic, besides other tonics. These remedies were continued, and in addition she was advised to inhale five gallons of oxygen-gas three times daily, and to eat daily two uncooked adrenals from a sheep.

This treatment was begun June 23d, and on the 6th of July the patient returned and showed great improvement in color and general appearance. Her courage had returned with her appetite. She was hungry for the first time in five years, she said. There was a diminution of the pigmentation; there was a decided increase in strength, and the red blood-cells had risen to 3,000,000 to the cubic millimeter; there was also a decided change for the better in the appearance of the cells. The improvement has since then steadily progressed, and on September 14th there were 4,000,000 red blood-cells to the cubic millimeter, 80 per cent. of hemoglobin, and a very striking change for the better in the shape of the corpuscles. There was now polymorphous leukocytosis, with perinuclear granules taking the basic stain. Subsequently there was a polynuclear leukocytosis.

On September 27th, the stomach-contents were again examined, and although the patient had shown so much general improvement, and had regained six pounds in weight, no change for the better could be discovered in her digestion. Hydrochloric acid and pepsin had been added to the treatment during the past four weeks. Her bowels had been occasionally loose and some undigested food had passed, but with these exceptions there had been no complaint referred to the digestive tract. From her sensations she supposed that her stomach was quite well. As to the pigmentation, it has at this writing almost entirely disappeared from the hands, face, and breast. There are slight remains of the patches of dark brown about the cheeks, but these are scarcely noticeable. The areolæ of the nipples are no darker than is common with women who have borne children. About the waist and over the abdomen a moderate amount of pigmentation is still observed. The most striking improvement is seen in the pulse, which is now large, strong and frequent. The blood-pressure is considerably above that of health, but it does not show that high tension mentioned by Prof. Schäfer[1] and Mr. Oliver.[2]

This treatment was begun some weeks before the experiments reported by Schäfer and Oliver had reached me, otherwise I should have been more careful as to the quantity of adrenal allowed the patient. I discovered that she rather enjoyed the glands, prepared as a sandwich, and on some days had taken three instead of one or two as originally directed. As no untoward effects followed the ingestion of the adrenals I have allowed the patient to continue without restriction. It is a matter of interest that so large an amount can be taken without causing discomfort to the patient. At this day, October 1st, the patient is in better health than she has been for five years, and insists on pronouncing herself well. All medication has of late been withdrawn save hydrochloric acid and pepsin.

I am not prepared to say how much benefit may have been obtained from the oxygen administered, although so far as the arsenic and iron are concerned they had been taken by the patient some time before she had come under my observation, and without benefit. It is my judgment that improvement has been wrought mostly by the eating of adrenals from the sheep. One cannot but be suspicious of an adrenal that is palpable in a woman forty years of age, such an enlargement being too suggestive of malignancy. It will be noted, however, that the blood-examinations afford the hope that the adrenal disease is not carcinomatous in nature.

436 FRANKLIN ST.

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***The Revival of the Index Medicus.***—The number of subscriptions to the *Index Medicus* officially received up to November 5th is 174. It is earnestly hoped that the requisite two hundred will have been received by December 1st, when the question of discontinuance or revival will be definitively determined.

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***Dr. David D. Stewart*** has been elected Professor of Diseases of the Stomach and Intestines in the Philadelphia Polyclinic.

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[1] Brit. Medical Jour., Aug. 10, 1895. [2] Ibid., Sept. 14, 1895.

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# THERAPEUTIC NOTE.

## THE USE OF BELLADONNA IN PEMPHIGUS.

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IN a disease that is so stubborn to treatment and frequently so distressing as pemphigus, any amelioration by means of a drug is thankfully acknowledged. Belladonna and its alkaloid atropin have been used in pemphigus, and some benefit has been ascribed to them. The main interest in the case in hand, however, lies in the circumstance that the reason for the improvement seems to be clearly shown.

On August 5, 1893, a brunet boy of 15, of Polish Jew parentage, limped into the San Francisco Polyclinic. He was suffering from blebs of the feet of such severity as to seriously interfere with locomotion. They had never appeared in any other locality and the majority of them came on the soles.

His father, whom I saw later, said that these blisters first appeared at four years of age, coming on in the summer and ceasing in the winter, but for the past three years they had been continuous through both summer and winter, being, however, worse in summer. The severest attack

FIG. 1.

Aspect of sole of foot.

the boy had ever had was that for which he first consulted me in the summer of 1893. The severity of the affection in the summer season is a noteworthy fact, because, as we shall see further on, temperature has always had a decided influence in this case.

The contents of the blebs were of a clear, amber color, of alkaline reaction, and with heat and nitric acid, gave an abundant precipitate of albumin. There were enough red blood-corpuscles in some of the blebs to tinge the contents red, or even give them a violet color, and sometimes enough fibrin to coagulate the whole or a part of the fluid into a jelly. Apparently there never was enough migration of white blood-corpuscles to make the contents purulent, except as a consequence of

FIG. 2.

Aspect of dorsum of foot.

secondary infection, and unless such infection took place there was no inflammatory areola around any of the blisters. Aside from undue perspiration of the feet, there were absolutely no symptoms that could be referred to the nervous system, unless the formation of the blisters themselves be looked upon as evidence of nerve-derangement.

The boy had wet the bed almost every night as long as he could remember. In every other respect he enjoyed good health. There was no spontaneous pain, only tenderness due to the lesion of the epidermis; there was no analgesia, no paralysis, and no tenderness along the nerves. The muscle-reflexes were normal and the boy could stand with his eyes closed. The sensations of touch, pain, locality, heat, and cold were also normal. These facts are brought out to show that the pemphigus in this case was not a mere symptom of leprosy or of some disease of the nervous system, but, so far as our present knowledge goes, it was an independent disease.

There is a curious disease characterized by an hereditary propensity to the formation of blisters on the reception of slight injuries. This affection is now named hereditary inclination to the formation of blebs, and was first described almost simultaneously by J. Wickham Legg[1] and by Goldscheider,[2] and I at first supposed that the present case might be an instance of it, for the history given me was misleading. The patient told me that he had been subject to this affection from his earliest recollection, and his aunt said also that he had always had it.

[1] St. Bartholomew's Hospital Reports, 1883, vol. xix.

[2] Hereditaere Neigung zur Blasenbildung, Monatshefte f. prakt. Derm., 1882, No. 6; Abstract in Vierteljahressch. f. Derm. u. Syph., 1883, p. 145.

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Furthermore, the immediate cause of the bad outbreak for which he came to me seemed to me to be the wearing of a new pair of shoes. Later on, however, I learned from his father that the boy had been perfectly well up to the age of four, when the present affection began, and that it had appeared intermittently ever since. The father, who was a worthless fellow, enjoyed good health, and said that none of the other members of his own family, or, as far as he knew, of the family of the boy's mother, had ever had any such affection. The boy had a sister and a brother, aged respectively 17 and 13, both of whom enjoyed good health, and had never been afflicted with any trouble resembling pemphigus. His mother had died about seven years previously, probably from some accident during confinement.

Now the essential features of the disease described by Legg and Goldscheider are that it is hereditary and congenital, and that the blebs appear on the reception of a slight trauma. The affection in the case under consideration was neither hereditary nor congenital, and I concluded on longer observation that the appearance of the bad attack mentioned and the wearing of the new shoes were simply coincident, for he had no special inclination to get blisters from traumatisms. Therefore the disease described by Wickham Legg and Goldscheider was definitely excluded. The case was not one of dermatitis herpetiformis, or Duhring's disease, for there was no dermatitis. It was not at all like a case of cheiropompholyx, lacking entirely the little sago-grain-like vesicles between the fingers and toes.

There seemed, therefore, no doubt that this was an instance of that interesting group of cases to which probably the name of pemphigus ought to be limited, in which the entire lesion consists of an eruption of blebs, having a symmetric distribution, a chronic course, and a tendency to recur.

We had, therefore, the kind of case, which, according to Hutchinson, should yield readily to treatment with arsenic, for the patient was young and in good health, and had a sound stomach, and, above all, had no blisters in the mouth. The boy began taking Fowler's solution on August 5, 1893, in two-drop doses, t. d.; on the 8th the dose was doubled; on the 12th, he took 5 drops; on the 15th, 7 drops; on the 22d, 10 drops; on the 26th, 12 drops, which he continued up to August 29th. He then complained of severe frontal headache, and as the blistering continued without cessation or amelioration of any kind, and, as I feared, because of the intense headache, one of those sudden explosions of arsenic in the nervous system, it was determined to abandon this line of treatment.

About this time it was noticed that the cutting-edge of the upper central incisors, instead of being straight, was concave. The teeth were excellently shaped in every other respect, being of normal size, with straight lateral borders, perfect enamel, and well set, so that they could not be called Hutchinsonian. Furthermore the boy had a well-shaped head and good skeleton, with no affection or history of disease of the eyes, ears, or nose. The father denied ever having had venereal disease, and there was no history of miscarriages in the family. In addition to this, the pemphigus in this case was decidedly unlike a bullous syphilid, which is inflammatory from the start, occurs almost exclusively in infants, lasts only during the secondary stage of syphilis, and denotes a profound cachexia. Potassium iodid was, however, tried for a short time, without results.

On September 12, 1893, the potassium iodid was stopped and the boy was then given 3 drops of tincture of belladonna, increased, on the 19th, to 4 drops. Decided improvement now set in and for about one week no new blebs formed. A few new blisters then appeared and the belladonna was increased up to 6 drops t. d., but without entirely controlling the formation of the blebs.

The patient now disappeared for a number of months, to return the following summer, and it was then that I hit upon the probable mode of action of the belladonna. While he lived in Denver, which is cold in winter and warm in summer, his feet perspired profusely only in summer, and he had pemphigus there only in the summer season. On coming to San Francisco, where it is never very cold, blebs formed all the year round, but in sufficient number to seriously inconvenience him only in summer. One of the best-known actions of belladonna is its power of controlling perspiration, and in doing this it put this lad's feet in the same condition in this regard in summer as in winter. It was then thought that if this were the only action of the drug, it would be as well to use it locally, and a small amount of belladonna was applied to the soles, and with satisfactory results. Blebs formed, but not in sufficient numbers to especially incommode the boy. One of the great objects of medication was fulfilled; although it did not cure the disease, it rendered this tolerable.

## MEDICAL PROGRESS.

***An Effectual Method of Treating Extensive Malignant Disease of the Breast.***—LANE (*Lancet*, No. 3763, p. 904) recommends amputation of the arm at the shoulder in certain cases of carcinoma of the breast in which the skin is so extensively infected that sufficient covering for the raw surface is obtained with difficulty, if at all. It is reasoned that the patient will die if not operated upon, and the arm will be a source of distress, owing to interference with its circulation; so that the removal of the member is really not a serious deprivation. An illustrative case is reported. An unmarried woman, 29 years old, presented a carcinoma of the breast, which had been observed for five months. The mass was large, and involved almost the entire breast. The skin over it was adherent, and was ulcerated over a space perhaps 1½ in. in diameter. All about the ulcer and for an area around the breast the skin presented minute nodules of infection. There were enlarged glands in the axilla, and in the subcutaneous tissue over the coracoid process a gland could be felt, which had apparently been infected from some cutaneous nodules just below it. There was no evidence of general metastasis. The situation was explained to the patient, and extirpation of the malignant disease with amputation of the arm proposed and acceded to. An incision was made along the length of the clavicle to the middle line and the middle third or more of the clavicle exposed and removed. The subclavian artery and vein were tied at the margin of the scalenus anticus, and all the areolar tissue and glands in the subclavian triangle carefully dissected out. There was no obvious infection of these glands, but beneath the clavicle the upper limit of the enlarged axillary

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glands was defined and the glands were turned downward. Great care was taken not to injure the suprascapular or other vessels crossing the subclavian triangle. From the inner limit of the horizontal incision another was carried down vertically along the middle line for about 9 in., well outside the limits of skin-infection. From the lower end of this another incision was carried backward to the posterior axillary fold, at what seemed to be a safe distance from the growth, and then it was run upward along the posterior fold to the axilla, whence it ran across the arm to the outer end of the clavicle. A vertical incision was made from the upper limit of the posterior axillary fold to the elbow, where it was crossed by a circular incision. The skin and subcutaneous tissues were dissected up off the deep fascia as far as the deltoid, out of which a large and sufficient flap was cut to insure as much vascularity of the flap as possible. The inner part of deltoid was removed and the limb disarticulated. The skin and the subjacent soft parts were dissected off the sternum, clavicle, ribs, cartilages, intercostal muscles, serratus magnus, and posterior wall of the axilla; and the great square flap, which measured more than nine inches along each side, was fitted accurately and comfortably into the large exposed raw area. The part that corresponded to the circular incision around the arm was united to the edge of the median or sternal incision, while the edges of the vertical incision in the arm were connected with the upper and lower horizontal incisions in the thorax. Very little blood was lost during the operation. The growth was found to involve the greater pectoral, but the most careful subsequent examination of the parts excised showed that the primary growth, the skin, and the glands were very freely removed. The wound ran the usual aseptic course, and was unattended with pain or discomfort.

***Changes in the Lungs of a Patient Treated with Tuberculin.***—ADAMI (*Montreal Medical Journal*, September, 1895) relates the history and the post-mortem appearances in the case of a man who had been treated with tuberculin for a year. At the time of coming under observation the man presented cough, hemoptysis, nightsweats, and progressive emaciation. These disappeared and health seemed to be entirely restored. In the course of five years, however, the symptoms returned and death took place in an attack of hemoptysis. Upon postmortem examination firm adhesions were found at the apices of the lungs, which showed marked fibroid changes, and contained well-encapsulated caseous masses and small, contracted cavities. In these parts the tuberculous process had evidently been arrested, but the rest of the lung-tissue contained numerous miliary tubercles distributed along the course of sundry bronchi. The tubercles were most numerous in the neighborhood of the old mischief; they were surrounded by very little pneumonic disturbance and were rather of the fibroid than of the rapidly advancing type. The second attack was thus not the result of fresh infection, but of the recrudescence of the old process starting from the incompletely healed disease-foci. The nature of the lesions indicated either relative attenuation of the virulence of the bacilli or increased resistance on the part of the tissues.—*British Medical Journal*, No. 1817; Epitome, p. 68.

***Fever in Nephritis.***—As the result of a clinical study, STENGEL (*American Journal of the Medical Sciences*, November, 1895, p. 522) maintains that fever may occur in the course of nephritis at the onset of an acute attack, as a result of the infection or intoxication causing the disease or of the inflammatory or degenerative lesions in the kidneys themselves; in the course of acute or chronic nephritis as a result of various complications; and in the uremic state. The fever associated with uremia may be sudden and pronounced and attended with coma, delirium, and convulsions; or it may be more general, more lasting, less marked, and associated with typhoidal symptoms.

***Metritis of Uremic Origin.***—At the French Congress of Internal Medicine, recently held at Bordeaux, DU MAGNY (*Mercredi Médical*, 1895, No. 41, p. 487) described a special form of metritis developing in the course of uremia, and characterized by a vaginal discharge of varying degree and color, of irritating properties, and manifesting an odor like that present in cases of uterine carcinoma. On palpation the uterus feels enlarged and softened in places. On ocular examination the cervix appears reddened and swollen, and its lips are the seat of numerous small prominences of varying size, resembling nodules of epithelioma. All of these phenomena disappear with the other uremic manifestations.

## THERAPEUTIC NOTES.

***Toxic Effects from Acetanilid Applied Topically.***—BRIGGS (*Occidental Medical Times*, October, 1895, p. 596) has reported a case of circumcision in an infant a week old in which topical applications of acetanilid were followed in the course of 24 hours by profound general cyanosis and a pinched expression of countenance, with coldness of the extremities. The removal of the drug from the wound, in conjunction with the employment of artificial heat, was soon followed by disappearance of threatening symptoms.

***The Serum-treatment of Anthrax.***—At the recent Congress of the Italian Society for Internal Medicine SCLAVO (*Lemaine Médicale*, 1895, No. 54, p. 466) related the results of experiments with the blood-serum of goats immunized to anthrax. Such serum injected into rabbits conferred immunity and displayed also therapeutic activity. An injection of from 5 to 10 c.cm. made twelve hours after the injection of a fatal dose of virulent anthrax-bacilli prevented death. A rabbit injected with protective serum twenty-four hours after receiving an injection of virulent anthrax-bacilli lived four days longer than a control-animal untreated with the serum.

***The Treatment of Diphtheria with the Antitoxin.***—According to the results of an official collective investigation there were treated in Germany with the antitoxin, during the year 1894, 6626 cases of diphtheria—2460 in the hospitals, 4166 in private practice. Among this number there were 5726 recoveries (86.5 per cent.—80 per cent. in the hospitals, 91 per cent. in private practice) and 855 deaths (12.9 per cent.); while 45 cases (0.67 per cent.) were under observation at the time of report.

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*A WEEKLY JOURNAL*

OF MEDICAL SCIENCE.

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SATURDAY, NOVEMBER 16, 1895.


## PROGRESS IN MEDICAL LANGUAGE?

THE last thing people study accurately and with interest is the thing that is nearest them. Astronomy was among the first objects to interest the human mind, and to-day we know more about geology than we do about physiology, more about physiology than about psychology. Educators have lately been in turn perplexed, amused, and disgusted by the fact that our undergraduates in the leading colleges of our country, after studying a half-dozen other languages, and "all things knowable," cannot write a single grammatic or accurate English sentence. This instrument, their native language, used earliest, most constantly, and throughout all intellectual and social life, is not studied, not improved, and not cared for. This fact seems strange, and strange it is, but it is as true as it is strange.

An equally astonishing fact, but one that is a mere corollary of the first, is the ludicrous conservatism of a few people about their language. We say this is a corollary because the blind opposition on the part of these people is due to utter inattention, to complete philologic ignorance. Their scholarship ends in having deep-rooted prejudices, the bases of which they have never for a moment examined. They have never examined the laws of language-formation ten minutes. Ask them what is Grimm's law or what are Skeat's rules, and they would be sorely puzzled; but ask them what the proper spelling of *hemorrhage*, or of *symphysiotomy* is, or what is the proper pronunciation of *phthisis*, and they are ready with a cocksure answer—an answer, of course, that coincides with that of the dictionary they happen to have bought.

It only needs, it would seem, a very moderate degree of critical acumen to observe that languages are formed by variations from a parent stem, and this process of variation can no more be stopped than can any evolutionary process. The appeal to authority, the attempt to thump an objector into silence with a dictionary, is of no avail. The truth is that language, perhaps more than any other product of the human mind, is convincing evidence of the character of the people who speak it. When a language ceases to grow and change, it is because the minds of the nation have ceased to be expansive and progressive. Look over the nations of the modern world and each is an illustration. The Latin is dead and changeless, the Spanish, if not dead, is as changeless as the speakers; the French is as crystallized as the French character; but it is the German and the English that are alive and rapidly undergoing modifications. In English the living, nervous, mobile-minded American is making additions to and modifications of his language that justly or unjustly provoke the amusement or scorn of his slower-going insular parent.

If minds and civilization are progressing this progress will find expression and proof in language. Whether written or spoken, language is a tool of thought and intercourse, and it is indubitable that all progress is conditioned upon perfection of instruments. It is, therefore, fatuous idleness to oppose the trend of change bound to take place in the word-tool of a people so ingenious and pushing as the American. Call it slang for a while, keep it out of print, stigmatize it with quotation-marks—do what you will—all is in vain. The part of discretion would seem to be conservative change. Genuine, that is wise, conservatism will bow to the inevitable and use it. Blind prejudice will oppose every sign or hint of change, whether good or not so good, and thus transform evolution into revolution.

An hour's reading of the results of philologic study would, or should, upset the prejudice of those who withstand as outrage any slightest suggestion of shortening the language. We argue for no sudden

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and violent changes; phonetic spelling is as impossible as it is (at present and to us) absurd. This is true at least as regards English. In Germany scientific and medical books are to-day printed with phonetic modifications that seem utterly revolutionary, and that certainly would have made each particular hair of Goethe's head stand on end in horror. It argues well for the quick adaptiveness and the scientific thoroughness of the German character, and bespeaks an originality and perpetuity of German science for which we may sigh in vain. In comparison with it how silly and stupid seems the bigotry of the few Americans and the many English who look upon the abolition of a hyphen, a dieresis, or a diphthong, as a sin and crime against Heaven's high law.

Much confusion of mind and ridiculousness of practice exist as to the anglicization of foreign words. This confusion arises from nonobservation of a simple rule of common sense. If the word is so infrequently used as not to be understood by the majority of readers it would seem plain that it should be considered a foreign word and italicized. But if it is a word so common that everybody knows at once what it means, why bother the editors, printers, proof-readers, and ten-thousand readers with the absurd italics? Let us abolish such useless foreign expressions as *per rectum*, *per os*, etc., when English can express the thought as well or better.

But if not italicized, what reason, anthropologic or philologic, is there for accents, diereses, and diacritic marks? They are not only useless, but are "eye-sores" and botherations to everybody concerned. They increase pedagogic labor and handicap education. They can never teach pronunciation, and in nine journals out of ten they are bunglingly and erroneously placed. They spoil the dispositions of type-setters, of teachers, and of pupils. Let us away with them! Let us write and print in "Roman" and in English, role, debris, ecraseur, raphe, regime, etc., etc.

Dieresis, accents, and diacritic marks are not in harmony with the spirit of the English language. They cannot teach pronunciation, and they are wholly unnecessary to separate two adjacent vowels that are to be pronounced separately. Who to-day writes *poĕtry*, *poĕtic*, *coöperation*, *diĕresis*, *myōsis*, *mammalĭa*, *aĕrial*, *aōrist*, *aōrta*, *manĭa*, *aĕrate*, and a thousand words ending in *eōus*, *ĭa*, *ĭōus*, *etc.*, as we have here written them? Why not also drop the dieresis out of *zoology*, *microorganism*, *oophorectomy*, *ptomain*, *leukomain*, *etc.*? If one pronounces them *zool-og-je*, *oof-or-ek-to-me*, *to man*, etc., he needs a common-school teacher's birch rod and not diereses and hyphens to help him. There are seven different ways of pronouncing the termination *ough*. Who will undertake to tell an ignoramus by diacritic marks how to pronounce it in all cases?

A great idol of the verbal idolater is the little hyphen, a somewhat that is rarely used when it should be used, and is used a thousand times when it should not be used. The conservative stickler is up in arms if you leave it out of *postmortem*, *antitoxin*, *culdesac*, *postpartum*, and the like, and yet it cannot be found in the Latin or the French originals. His scholarship is exhausted by the fact that in his dictionary the hyphen is there. Who put it there, and why it is there, what wonderful function or sense it has there, would puzzle any philologist, but it doesn't trouble protester. One correspondent was shocked because he saw the word extrauterine printed thus. Extra-ordinary, certainly! If the hyphen were stuck in between the compounds of every word made up of *extra*, *intra*, *ex*, *ab*, and the rest, the type-founders would for long be kept busy making hyphens, and our printed pages would look much as if composed of telegrapher's signs. The chief function of the hyphen is to conjoin two English words (complete in themselves when standing alone) when the double term is used as a single idea, and especially when the two words are nouns. It is a growing and reprehensible habit of all of us to use nouns as adjectives. Thus, instead of saying *renal disease*, *cardiac lesion*, *dermal affection*, etc., we seem determined to say *kidney-disease*, *heart-lesion*, *skin-affection*, etc. If we feel compelled to do so, let us at least see the hyphen.[1] But when we use nonanglicized Latin words, such as *post*, *extra*, *intra*, etc., the hyphen is useless luggage, and the component parts should, with rare exceptions, be run together, as is done with tens of thousands of our common words. *Anti-toxin* is as absurd as would be *anti-pathy* or *anti-septic*. The hyphen in *extra-uterine* is as redundant as it would be in *extra-ordinary*. And so on to the end! There are a number of words that, thoroughly anglicized as they are, and commonly printed as two words, might with great advantage be run together and form one word. Such, for example, are *postmortem*

[1] We recently saw an advertisement of a lost child—"A dark skinned boy," it read.

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(either as a noun or an adjective), *postpartum*, *vasomotor*, *microorganism*, *nonelastic*, *culdesac*, etc., etc.

In the crying need of condensation in medical writing that exists, it would save tons of paper every year, and much besides the paper-bill, if we would usually put our numbers in figures instead of spelling them out.

There is nothing more suggestive of the originality and progressive character of the American medical mind than the almost universal acceptance within the past few years of a few changes in the direction of brevity and usefulness in the spelling of a few of our medical terms. To be sure these changes[1] are at best or at worst somewhat trivial, but they prove that just as we are anxious to perfect our therapeutic and surgical instruments so we may hope for further progress in our most used (and most barbaric) tool, language.

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## LIGHTNING AS A REMEDY.

THE privilege of having been born in the nineteenth century is not confined to the enjoyment of trolley-cars, bicycles, and football. A still greater blessing is to be a contemporary of the New York electro-therapeutist, who was recently exploited by the *Herald*. The reporter who got up the interview and designed the headlines must have had more reward for his trouble than the mere consciousness of having done good. Perhaps he took a "shock," in part payment—his style, in fact, suggests that he he had had several shocks, some electric, and others alcoholic.

The reporter announces, through the columns of the *Herald*, that there is a female physician in New York City who has attained a good practice, and that "lightning is her remedy." We should like to give her name; and would, but that it is against our conscience to advertise anyone gratuitously. We simply wish to call attention to her lightning. She keeps this on tap somewhere "near to the heart of the East Side" of Gotham, where it seems from all reports to be badly needed. She has a dispensary, "which is fitted up with a thought for the impression in the way of an example in house-furnishing it might leave upon the minds of the housekeepers who wait within its walls for medical help." How like a woman! Tidy, neat, suggestive, hypnotic! House-furnishing and lightning—all in one dispensary and in one paragraph. And then, too—how like a reporter, to write of a room being fitted up with a thought!

This wondrous dispensary, thus fitted up with lightning and with a thought, contains also a Thomson-Houston alternating current with a pressure at 104 volts; also a dark-room for an electric bath; also tiny electric globes for insertion into the mouth or nose, which impress the imaginative reporter as "fairy-like;" also a room for the electro-gynecologists, into which we hope the reporter was not admitted. But the most wondrous is a closet just large enough to contain a cot-bed, and with two big arc-lights in the ceiling. These are turned on, and the patient "absorbs light into every pore of his body for hours at a time."

At one side is another room, "where the thunderbolts are stored." Finally, the reporter tells us that in the midst of this scene the doctor "handles the enormous amounts of electricity which is (*sic*) chained in the dispensary with the most fascinating ease, touching buttons, starting belts and bands on great machines, which fill a room with fireworks with as much complacency as a typewriter would touch the keys of her machine." This, we submit, is rather hard on the typewriter. She is so monopolized nowadays by the humorous journals that it does not seem fair to drag her in to decorate the authentic descriptions of newspaper-reporters. To fill a room with fireworks from a machine which also displays complacency was enough of a task, one would think, to have kept the reporter's mind off the typewriter for a few moments at least; the fact that it did not shows plainly that the poor scribe had had a shock or a glass too many, and was already seeing stars. Else why does he tell us that the way to chain electricity is with fascinating ease?

Sincerely, we esteem it a great privilege to live in the age of lightning-dispensaries and newspaper-reporters. These latter are a versatile fraternity of whom it may be said, as Dr. Johnson said of Goldsmith, that they leave scarcely any style of writing untouched; but of whom it cannot be said with equal justice, that they touch nothing that they do not adorn. When they touch a medical or scientific subject we are reminded that we live in an age, not of culture, but of popular literature; and that the newspaper-reporter who, when he wants to advertise an electro-therapeutist, announces that "lightning is her remedy," is, after all, not writing to adorn

[1] E. g., æ and œ to *e*; dropping the *al* from a few adjectives: in chemic nomenclature, etc.

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literature and to tell the truth, but rather to catch the eye of the populace and to sell an edition.

As for the enterprising electro-therapeutist, if it be true that she is a member of numerous learned and highly honorable scientific bodies, we adjure her not to make her presence in them uncomfortable to her fellow-members by creating the suspicion that like some cloud-compelling and bolt-hurling Jove—disguised as a woman-doctor—she is ready on the slightest provocation, as in the heat of debate, to shoot forth lightning. If she does this, especially by advertising, they might take a notion to put her out.

## EDITORIAL COMMENTS.

***Infectious Diseases in Poultry.***—*Bulletin* No. 8 of the United States Department of Agriculture contains an account of some interesting investigations concerning infectious diseases among poultry. The Bureau of Animal Industry has been doing some excellent work, Theobald Smith and Veranus A. Moore being conscientious workers, and their contributions to animal pathology have been many and valuable.

In the present *Bulletin* Dr. Smith describes an infectious disease among turkeys caused by protozoa and producing an enterohepatitis in the fowls affected. Turkeys normally have two ceca, two blind tubes opening into the intestine about 6 in. from the cloaca. These tubes are nearly a foot in length, and in the disease under consideration they were found invaded by the parasite, the mucous and submucous coats being thickened and inflamed, and a coagulable exudate poured out into the cecum. The parasites occupy the tissue in groups or nests. Other regions of the intestine were not affected, but the liver was extensively diseased in the greater number of animals examined. The organ is enlarged to almost twice its normal size, and round, discolored spots, varying in number and size, are distributed over the surface; these spots are made up of dead liver-cells, and in the reticulum lie large numbers of protozoa.

The organism is a form of ameba, and its effect on the body of the turkey resembles somewhat that of the ameba of dysentery in the human being. Dr. Smith points out the differences between the two amebæ, but does not answer the question whether any causal relation exists between them. The fact that an ameba is found causing similar disturbances in fowls to those produced by the amœba coli in man is of sufficient importance to bear further investigation.

A second paper in the same *Bulletin*, entitled "A Preliminary Investigation of Diphtheria in Fowls," by Dr. Veranus A. Moore, has a close connection with the foregoing question, inasmuch as some observers consider the diphtheria of fowls identical with that found in man, at least so far as clinical symptoms go, and several cases have been reported in which children became infected through the handling of diseased fowls. Dr. Moore found the lesions present in the poultry examined by him similar to those described by European observers; the bacillus detected, however, could not be identified with the one usually described as the cause of fowl-diphtheria.

While the microorganisms found associated with diphtheria in swine, fowl-cholera, and diphtheria in birds and poultry differ considerably from the Klebs-Lœffler bacillus of human diphtheria, still the latter presents such a varying morphology, under different conditions of growth, that it is not out of the question to attribute the differences between the bacillus of human diphtheria and the bacillus of fowl-diphtheria to a difference in habitat, and consider all the membrane-producing bacteria as belonging to one family or species. It is hoped that further studies along this line will be made by the Bureau of Animal Industry, as the economic importance of the subject is very considerable.[1]

Evidence is accumulating day by day showing how great a part the lower animals play in the causation of disease in man, and the time is not far off when zoology and comparative medicine will receive as much attention in our medical schools as materia medica and pharmacy.

***Scientific Cooking.***—The question of food has received much light from recent practical investigations in laboratories designed especially for studying the needs of the poorer classes. Such laboratories have been established in the cities of Boston, Chicago, New York, and now in Philadelphia, in the shape of scientific kitchens, where the effort is made to furnish food of sufficient nutritive value for the lowest possible price. Here the wants of the people are carefully studied, and as far as possible supplied. It has been found that much food is wasted because it is improperly prepared; the method of cooking does not bring out the quality of nourishment contained in the food or destroys it altogether.

It has likewise been shown that a great saving can be made in fuel by using ovens fashioned somewhat after the manner of incubators, the cooking being done slowly, the oven covered with felt retaining an even heat for a long period of time. By this slow process of cooking much greater nutritive value is obtained out of the food, and an oil-lamp can serve as a means of fuel. According to this new method a broth is made by placing meat and bone in an *Aladdin* oven (the name given to a simple incubator invented by Edward Atkinson), covering the meat with water and allowing it to stand over night at a temperature of 190° F. This continuation of the cooking at a temperature below the point of coagulation secures from the material the greatest amount of gelatin, retains the flavor, and makes a product richer in albumins and extractives. The long cooking of the vegetables at the temperature named likewise improves their flavor and increases their nutritive value.

In Philadelphia a scientific kitchen has lately been started under the auspices of the College-settlement Association in a section of the city once designated as the "slums," and here under a competent "chef," trained in scientific cooking in the Technical Institute of Boston and in the Drexel Institute of this city, the latest knowledge on the subject is being put to practical test. The kitchens in other cities have hardly proved a success in

[1] The eleventh census shows that in 1890 there were in the United States 258,472,155 barnyard-fowls (exclusive of ducks, turkeys, and geese), and that the egg-product for 1889 was 817,211,146 dozens, with a money-value of $98,000,000.

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the financial sense of the term, but they have served as experiments and have made the work easier for others.

Many valuable dietaries have already been constructed combining proper food-value with cheapness and palatableness, and much is yet to be done in educating the public—both rich and poor—to make use of them. Lunches for school-children to take the place of indigestible sweetmeats and pastry form one of the successful ventures these kitchens have been engaged in. A luncheon in the college-settlement kitchen consists of a bowl of soup, home-made bread (baked on the premises), a cup of cocoa or coffee, and a plate of prunes or baked apples. This can be had for fifteen cents. Frying in the ordinary way is not made use of, but fish-cakes and meat-croquets are prepared by being cooked in boiling fat, this process rendering them quite digestible. A "portion" consisting of baked beans, brown bread and butter contains proteids 35 gm., fats 25 gm., carbohydrates 108 gm., calories 824 gm., costs five cents, and has in it almost one-third of the food-value required by an ordinary workingman in twenty-four hours.

While we think there is not much room for waste in the average day-laborer's kitchen, no doubt he could live much better for the same money if his wife knew something about the chemistry of foods; and it seems to us these kitchen-laboratories can be made to serve a great purpose by conducting classes in them, say for servant-girls, and inviting the co-operation of their employers. The whole subject is of vital interest to the physician, as it is related so intimately to disease-processes and to therapeusis, and it is worth his while to to give it serious consideration.

***Microbes on Money.***—We have all heard much of the drawbacks of riches. They take unto themselves wings, they entail anxious days and sleepless nights, they breed discord, and strangle family-affection. Yet most of us in viewing these terrors have usually felt "our courage rise with danger," as the good old hymn says, and inclined to the opinion that we would personally be willing to take the risk of them, if the condition they accompany happened to fall within our reach. The dangers are so incidental and remote that we feel sure *our* skill and judgment would enable us to avoid them. Within the last few years, however, the microscope has demonstrated another danger of more serious nature, in that it is not merely a consequence or incident of the possession of riches, but actually attaches and belongs bodily to the material wealth itself. The bacteriologist has declared that, although we may acquire riches and escape unhappiness, we must accept the risk of serious contagion every time we realize any of them in the form of money; that the surfaces of coins of all metals and denominations and bank-notes of every description are simply swarming with germs of various degrees of virulence. Cultures have shown the presence of from 450 to 3500 germs upon a single coin, ranging from the *streptococcus* and *staphylococcus pyogenes* to tubercle-bacilli and typhoid-bacilli. These have been deposited of course from contact with saliva, pus, discharges, soiled fingers, and dirty pockets. The list is an appalling one, and literally supports the Apostle's statement that "money is the root of all kinds of evil." That these germs are virulent has recently been shown by inoculating rabbits with their cultures and obtaining characteristic reactions. So far everything is discouraging, and the bacteriologist simply emphasizes the maledictions of the preacher upon literally "filthy lucre." But it was soon noticed that the proportion of fatal results from these inoculations was extremely small considering the nature of the germs present, and a series of recent experiments at an Algerian military hospital has developed the surprising fact that coins possess actual bactericidal properties and rapidly destroy or weaken any germs lodged upon their surfaces. In a cold chamber the germs of typhoid and the Friedlander bacillus were destroyed upon sterilized silver or copper coins in eighteen hours; at a temperature of 37° C., about that of the pocket, the bacilli of typhoid, of diphtheria, of blue pus, and the streptococcus are destroyed in 6 hours. The Lœffler bacillus is the most resistant and upon cold silver or copper coins will live for from 3 to 6 days. Moisture and warmth greatly hasten the process, which is probably due to the formation of poisonous oxids and other salts of the metals. A similar action upon the germs of dental caries has been noted by Willoughby as due to the copper amalgam used in filling teeth. Nature's protective mechanisms are even more wonderful than her destructive ones. We have been loudly assured by the socialist and labor-sympathizer that "capital can always be relied upon to protect itself," but we little thought to see the statement verified in this wise. Gold coins are much less actively bactericidal than either silver or copper, and germs may survive upon them for 5 or 6 days, which may partially console us for their infrequency in our professional pockets. Some kindly disposed individual should certainly bring this latter fact to the knowledge of our bimetallist friends, as it would furnish them with a strong argument against "the yellow metal."

## CORRESPONDENCE.

### THE RELATION OF PELVIC DISEASES TO MENTAL DISORDERS.

#### A Correction.

*To the Editor of* THE MEDICAL NEWS,

SIR: The proof of my article which was published in the MEDICAL NEWS of October 5, 1895, came to me while watching at the bedside of a near relative who was seriously ill, and this probably accounts for the fact that I did not notice the omission of cases from Dr. Rohé's report, which should have been as follows:

Puerperal mania 6 cases, with recovery in 3; melancholia 6 cases—recovery in 1, improvement in 4; simple mania 1 case, with slight mental improvement; hystero-epilepsy with mania 2 cases—recovery in 1, operation too recent in 1 to give the result. Epileptic insanity 3 cases, with 2 deaths and slight improvement in 1; periodic mania 3 cases, with decided progressive mental improvement in all; paranoia 1 case, with slight but not permanent improvement—making 22 cases, with recovery in 5 cases and decided improvement in 7.

Very respectfully,

ISABEL M. DAVENPORT.

ILLINOIS EASTERN HOSPITAL FOR THE INSANE
KANKAKEE, November 5, 1895.

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# THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXVII. SATURDAY, NOVEMBER 23, 1895. NO. 21.


## ORIGINAL ARTICLES.

### THE PRACTICAL VALUE OF LAVERAN'S DISCOVERIES.[1]


BY WILLIAM OSLER, M.D.,
OF BALTIMORE, MD.;
PROFESSOR OF MEDICINE, JOHNS HOPKINS UNIVERSITY.


EVEN in well-known affections advances are made from time to time that render necessary a revision of our accumulated knowledge, a readjustment of old positions, a removal even of the old landmarks. Perhaps the most remarkable illustration of this is offered by the discovery of the tubercle-bacillus. What a *volte face* for those of us who were teachers before 1881! Happy those who had agility and wit sufficient for the somersault! Scarcely less important has been the revolution in our knowledge of malaria since the researches of Laveran, in 1881, on the parasite of the disease. His discovery attracted for a time little attention, chiefly because the workers in pathology, the world over, had not opportunities for studying the disease. The verification of his work came slowly, while the conception of its far-reaching consequences has not yet filtered from the laboratories and clinics into the wide field of every-day practical medicine.

There are several aspects in which Laveran's studies may be considered as of immense value:

#### THE RELATION OF THE PROTOZOA TO THE ACUTE INFECTIONS.

A stimulus has been given to research that has already borne fruit in observations upon amebic dysentery, Texas cattle-fever, and certain skin-affections. The question of the protozoal origin of carcinoma has been revived, and prosecuted with an energy that must result in a valuable addition to our knowledge of the structure, and possibly, too, of the etiology of malignant growths. Although the life-history of the parasite is as yet imperfectly known, sufficient details are available to furnish one of the most interesting chapters in pathology, and at last we have revealed the meaning of that periodicity, so mysterious a feature in the malarial fevers, which has puzzled generations of physicians since Hippocrates. As a direct outcome of the study of the protozoal parasites of paludism may be mentioned the really brilliant discovery by Theobald Smith of the parasite of Texas fever, also a hematozoon, connected in its life-history with the cattle-tick (Boöphilus bovis). No more interesting problem in comparative pathology has been solved of late years, and the life-history of the parasite is better known than that of any other pathogenic protozoon.

[1] Read before the Medical Society of the District of Columbia.

#### THE DIAGNOSIS OF MALARIAL FEVER.

The best guarantee of a truth, as some one has said, is the wisest men's acceptance of it. There has been an extraordinary unanimity in the verification of Leveran's main facts by every competent worker who has had suitable opportunities for the study. The extensive and complete bibliography—the most complete yet published—in the monograph by my assistants, Drs. Thayer and Hewetson,[1] gives some idea of the widespread interest which the question has aroused. It is not too much to say that Laveran's work has revolutionized the study of fevers, as now a trained observer can determine whether any given case of fever depends upon a malarial infection. The parasites are present in all forms of the disease, and constitute a diagnostic criterion of unfailing accuracy in uncinchonized subjects. A certain technic and training are required, which a season in any malarial center can give, but which is not so easy to get in other localities. I shall refer shortly to the extraordinary abuse of the term malaria, which is used as a cloak to cover our ignorance of the nature of obscure fevers. A more extended knowledge of the fact that the malarial fevers are readily and quickly recognizable will give the physician pause in a hasty diagnosis, and will in time obviate one of the most glaring inaccuracies in the mortuary returns of certain towns.

But it is in the study of the fevers in the tropics that Laveran's discovery will prove of the greatest service, and as shown by the work of Vandyke Carter, in India, and Dock, in Galveston, the differentiation of malarial from other fevers is quickly made. It is most important that men who desire to study this problem should be equipped with the necessary technic. Several recent reports on malaria in the tropics have been sadly defective, and show that valuable opportunities have been wasted from lack of proper training on the part of the observer. Accurate information on the subject, in

[1] "The Malarial Fevers of Baltimore." Johns Hopkins Hospital Reports, 1895. Vol. v.

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English, has not been until recently available. My article in the *British Medical Journal* (1887, I), remained for several years the only one which had a wide circulation, and the letters which I have received from practitioners in distant parts of the world indicate that, with the imperfect literature, there coexisted as a rule imperfect training and faulty apparatus. Now, however, the publication by the New Sydenham Society of Laveran's monograph, and of the works of Marchiafava and Bignami, of Mannaberg, and the monograph of Thayer and Hewetson, already referred to, gives access to all the available literature, and should prove a great stimulus to the study of tropical fevers from the new standpoint.

For so many generations the paroxysm of intermittent fever has stood for the type and representative of the class of fevers associated with chill that it has been, and still is, very difficult, particularly in this latitude, to avoid the suspicion of paludism in any disease associated with recurring rigors; and yet one may safely say that, in the cities of the Atlantic seaboard, the instances of chills and fever due to the malarial parasite are greatly exceeded by those of various other affections. The idea seems firmly ingrained in the mind, and I scarcely pass a week without seeing some instances in which the diagnosis of malaria has been made, simply because the patient has had recurrent chills. The error would not be so unfortunate were it not for the fact that it often causes delay in the adoption of suitable treatment, and may completely blind the physician to the true nature of the case. Perhaps the most frequent mistake is in the chills and fever of tuberculosis. As is well known, these occur at the two extremes of the disease. It is more particularly in the early stages that the mistake is serious, and I have on many occasions known a patient treated persistently for malarial fever without a suspicion having arisen that the trouble depended upon tuberculosis. In all varieties of septicemia the mistake is most frequent. Malaria postpartum, of which one hears not a little, is very often septicemia, and I rarely see a case of abscess of the liver that has not been drenched with quinin, in some instances for months, in the belief that it was a chronic malaria. Frequently pyelitis, pyelonephritis, gall-stones, and empyema are in the same way overlooked, and, even when the diagnosis has been demonstrated, I have often heard from physicians expressions which indicated a lingering idea that after all the septic trouble was only a consequence or a complication.

The profession at large has not yet laid to heart the following rules:

1. *That the diagnosis of the malarial fevers can be made with certainty by the blood-examination.*

2. *That an intermittent fever which resists quinin is not of malarial origin.*

A rich experience during the past nine years warrants the expression of these positive statements.

In the differentiation of the fevers of the South, about which so much discussion has taken place during the past ten years, the study of the changes in the blood must in the future play a most important rôle. The question of the existence of a third type of continued fever, which has been advocated by Guitéras, Baumgarten, and others, cannot be determined without a more complete study than has yet been given to the cases.

When one reads the report of the Proceedings of the Orleans Parish Medical Society, in which for many years the nature of the long-continued fevers of Louisiana has been discussed, the condition really seems to be similar to that in which the profession labored before the differentiation of typhus and typhoid fever. It is interesting to note that in New Orleans at least physicians seem to be coming gradually to the conviction that the long-continued fever which resists quinin is in reality typhoid, a view strongly advocated by Dr. Matas in a short paper in THE MEDICAL NEWS of December 15, 1894.

### MALARIA AND VITAL STATISTICS.

The U. S. Census Report for 1890, recently issued, which covers the six years ending May 31, 1890, gives the following number of deaths from malaria, to which I add for comparison those of typhoid fever:

| | | | | | | |
|---|---|---|---|---|---|---|
| Washington— | Malarial fever, | | 500; | Typhoid fever, | | 850. |
| Baltimore— | " | " | 934; | " | " | 904 |
| New York— | " | " | 2060; | " | " | 2031 |
| Brooklyn— | " | " | 1413; | " | " | 1002 |

That in Baltimore, New York, and Brooklyn the deaths from malarial fever exceeded those from typhoid will, no doubt, be read with astonishment, particularly by those familiar with the conditions of practice in those cities. Any reasonable physician in Philadelphia or Baltimore will at once acknowledge that a death from malarial fever is a great rarity, while deaths from typhoid fever are only too common. Taking the reports of the large New York hospitals as a basis, one can estimate the degree of reliability of the figures on which the mortuary statistics are prepared. In the last-issued report of the Department of Public Charities and Correction of New York (1894) for the year 1891, the comparative rarity of malarial fever is well indicated by the fact that, of above 15,000 patients admitted to Bellevue Hospital during the year, there were only 15 instances of intermittent malarial fever. It is true that there were 76 cases of typhomalarial fever and only 16 of typhoid in the figures, which is surprising, considering the little stress that has been laid of late years upon typhomalarial fever; but when one turns to the list of deaths and finds that

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all the cases of typhoid fever died, 16 in number, it looks as if the diagnosis rested a good deal upon whether the patient recovered or not. In the total number of deaths, 1547, malaria does not appear as accounting for a single one. So also at the Charity Hospital, of 619 deaths not one was caused by malaria.

At the Roosevelt Hospital in the year 1893 there were treated in the medical division 1436 cases, and, so far as one can gather from the report, there does not appear to have been a single case of malaria treated in the wards. Dr. Roosevelt, to whom I wrote on the subject, kindly informs me that from January 1, 1883, to December 31, 1893, inclusive, there have been but two deaths from malaria, both cases of the pernicious form. The total number of deaths in medical cases during this period was 2024, so that the proportion of deaths from malaria to all deaths from disease in the medical division of that hospital during the 11 years was about 1 to 1000.

In the New York Hospital, for 1893, of 1482 medical cases, there were in all 38 cases of malaria, with one death from pernicious fever.

Through the kindness of Dr. Browning I am able to give more extended figures for Brooklyn, a city in which the prevalence of malaria has engaged the attention of the profession for some years. The figures and tables sent to me were prepared by the direction of the Committee of Health, under the supervision of the secretary, Dr. G. S. West. Dr. Browning writes: "One peculiar general feature is that in the last 14 years, while the malaria cases have diminished pretty steadily down to less than one-half, the typhoid cases have fully doubled. During the same period the population has increased fully one-half, and by a small extent by increase in the city's area. Even then the typhoid cases have increased about twice as fast as the population."

He gives the figures for the ten years from 1884 to 1893, inclusive: deaths from typhoid fever, 1543; deaths from malarial fever, 1224. It will be noticed that there is a serious discrepancy between these figures and those in the Government Census for 1890, which deals with the six years ending May 31, 1890, during which time the deaths from malarial fever are stated to be 1413.

Carefully prepared tables of the deaths from typhoid fever, malarial diseases, and typhomalarial fever from 1880 to 1893 inclusive, have also been furnished. The totals for the 14 years are as follows: Typhoid fever, 1898; typhomalarial fever, 1104; and malarial diseases, 2006. In the Transactions and also in the Proceedings of the Medical Society of the County of Kings there are interesting discussions and reports on the prevalence of malaria. With reference to the occurrence of fatal malaria, it is worthy of note that in the reports on malarial fever on Long Island by Dr. Baker and by Dr. W. H. Thayer,[1] while it was acknowledged that intermittents occurred in many parts of Long Island, yet none of the physicians, whose correspondence is given in the papers, mentions, so far as I can gather, a single case of fatal malarial fever, nor do I see one mentioned in the discussion following the reading of the reports. In September, 1893, the members of the Society of the County of Kings again discussed at length the question of malaria in Brooklyn.[2] I have looked carefully through all of the papers there read, and it is certainly a very significant fact that not one of the authors of the papers, and not a physician who discussed the question raised, mentioned the occurrence of fatal forms of malarial fever. In the article by Dr. Hall on types of malaria seen in Brooklyn, in which he quotes the observations of a number of physicians, no mention is made by any of them of fatal forms, and this is a city credited in the bills of mortality with as many deaths from malaria as from typhoid fever! Certain of the writers of the papers seem to have themselves been a little suspicious; thus Dr. Hall remarks that "Carelessness of diagnosis probably affects our ideas of the prevalence of malaria to a considerable extent;" and Dr. Law, in the methods of treatment of malaria in Brooklyn, states that it seems to him a good practice in cases of the remittent type of the disease to give quinin in large doses for two or three days, and then, if the fever is not broken up, to stop and take bearings and search for some inflammatory lesions, or reconsider the possibility of typhoid.

The report from the Brooklyn Hospital gives the following: In 1890, of 608 medical cases admitted there were 18 cases of malaria and no deaths. In 1892, of 742 medical cases admitted there were 27 cases of malaria and one death. In 1893, of 683 medical cases admitted there were 20 cases of malaria and no deaths.

In the report from the Kings County Hospital for the year 1892 there were no deaths from malarial fever in a total of nearly 3000 patients treated with 310 deaths. In the report for the year ending July 31, 1893, there was one death from pernicious malarial fever in a total of 3258 patients treated, with 425 deaths.

In dealing with the statistics of malaria, Brooklyn may be taken as a model, and I have dealt with it partly because of the reputed large death-rate, and partly because the activity of the members of the Medical Society of the County of Kings has furnished most suggestive material, which has been supplemented by the kindness and energy of Dr. Browning.

[1] N. Y. Med. Journ., 1885.
[2] Brooklyn Med. Journ., Jan. 1893.

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In localities frequented by the disease, malarial fever kills in such a way that the diagnosis is rarely in doubt. In the acute cases death follows within a few days. In other cases the hemorrhagic features prevail, while the malarial cachexia or the acute exacerbations in the malarial cachexia less frequently prove fatal. The simple intermittents rarely kill, even when protracted. Taking into consideration the statements of physicians in Brooklyn and Long Island, as given in the reports referred to, together with the striking absence of all reference to fatal forms, also the distinctive and readily recognized character of the fatal forms of malaria, one cannot help feeling that in these localities and elsewhere the diagnosis is put down carelessly, and does not represent in any way the incidence of malarial fevers. In the oft-quoted and oft-printed chart of the Michigan State Board of Health, showing the comparative mortality from typhoid fever in sewered and unsewered towns, Brooklyn figures almost at the bottom of the list, having a mortality of 1.5 per 10,000 inhabitants, a mortality which is much more than doubled if we add, as it seems should be done, the deaths due to typhomalarial fever and those due to malarial diseases.

The conclusion of the whole matter may be thus briefly expressed—the mortuary bills dealing with malaria are false, due either to ignorance or to wilful deception on the part of those who make the returns. Malaria is a disease that now rarely kills in the large towns on the Atlantic seaboard, and it behooves the profession to abandon the practice of making a careless diagnosis of the disease in every case of obscure fever which proves fatal, and the Medical Boards should refuse to receive a death-certificate signed malarial fever without more specific details than have heretofore been demanded.

## *SEVENTEEN CASES OF CHRONIC (RELAPSING) APPENDICITIS, TREATED BY OPERATION.*[1]

BY HUNTER McGUIRE, M.D., LL.D.,
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IT will be seen that 10 of the cases reported were females and 7 males. There were 16 private cases and one operated on in the amphitheater of the University College of Medicine; 15 cases were operated on in St. Luke's Home (my private hospital), and one was operated on in a private house; this last was the fatal case, and the only fatal case of operation for chronic appendicitis that I have had.[2]

The series of cases embraces operations performed in the interval between the attacks, when all or nearly all of the inflammatory symptoms had disappeared—the quiescent stage, as was originally suggested some years ago by Mr. Frederick Treves. There is not included any case of acute or other form of appendicitis.

From the report of my cases it may be seen that I am not always in a great hurry to operate, but that I am inclined to wait for the more acute symptoms to wear off, and operate, if at all, after suppuration has taken place, or during the quiescent stage, between the attacks.

There are some cases of appendicitis so slight that I am satisfied they belong to the general physician and not to the surgeon; very often they are not recognized as appendicular trouble, but are put down as bilious colic, localized petitonitis, kidney-colic, etc. Under rest, purgation, hot applications, rigid diet, leeches, and the very moderate use of opium these cases recover, and, in very many instances, stay well. In some of these cases, if, after the attack, one could look at the appendix and structures around it, he would see evidences of inflammation in the shape of slight thickening, induration, and adhesions. If one will examine subjects in any large dissecting-room he will find frequent specimens of this kind. These slight cases of appendicular trouble are not cases for operation. A man's usefulness is not impaired nor is his life usually shortened by it; indeed, he often gets on through life better than the man with a crippled leg, or the poor fellow who lives for years with a crippled heart. I wish my voice was strong enough, just here, to call a halt to the men who say: "Operate at once—not this afternoon or to-morrow, but now," in all cases when the disease is recognized.

There are cases, however, in which the disease, instead of abating, grows worse, the temperature gets higher, the pulse more rapid, the lump in the iliac region is larger, the belly is more tender, and possibly a rigor comes on. A slight pitting edema in the skin over the region of the appendix is sometimes seen. The fluctuation tells us that pus has formed, and the whole aspect of the case is changed. I know I subject myself to severe criticism when I say that even now I am not in all cases in a hurry to operate. Possibly the disease has been going on for some days, as is often the case, before the consulting surgeon is called; the symptoms are not so urgent, fluctuation not very distinct, and the barrier of lymph containing the pus is probably strong. I am not in a hurry to operate, because a certain proportion of these cases may get well without interference. Recovery is not always impossible, even after some matter is supposed to be present or is actually there. Years ago, when I knew less about the subject than I do now, I have punctured the abscess about the

[1] Read before the Medical Society of Virginia, September, 1895.

[2] I have operated on three other cases of chronic appendicitis, but the records of these cases are too imperfect to justify reporting them. These 3 cases recovered.

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appendix with the needle of an aspirator and pumped out some of the pus, and afterward seen the man get well and stay well. One case was that of a Presbyterian preacher in Richmond, whose appendiceal abscess I aspirated several times. He is well and at work now. I do not pretend that this is good surgery, or that I would repeat it at this time; I introduce the fact now to show that recovery may take place after matter has formed. I have seen more than one instance of this, and I have even thought that the violent inflammation rendered the patient free from a second attack. This is certainly not impossible. If a large number of cases of appendicitis are examined it will be found that a large majority of these cases never have a second attack. It is true that delay in operating may end in the barrier being undone and purulent irruption into the peritoneal cavity ensue. I have never seen this occur after the third day. I have, however, seen matter burrow down toward the pelvis and bladder and upward toward the liver. Very often when one operates and opens this abscess he will find it attached to the parietal peritoneum; if so, the operation is simply opening an abscess. The opening should then be made large enough to introduce the finger and gently search for the appendix; and if one can find it or fecal concretions, they are to be removed. If the appendix is fastened by adhesions it should be let alone. The abscess-cavity should be drained with a rubber tube and gauze. If it is found that the abscess is not attached to the parietal peritoneum, I would treat the case, if practicable, as I describe in Case XI.

In acute perforating appendicitis I would operate at once. In such cases one cannot operate too soon. There may often be very violent infection and inflammation producing gangrene and sloughing of the appendix. The peritoneum is speedily involved, and diffuse septic peritonitis quickly comes on. Very often, in these cases, as soon as the peritoneum is opened there escapes a milky fluid thinner than pus, and it is always most imperfectly, if at all, confined by fibrin. These are the frightful cases, and an early operation alone gives a chance for life. It is these cases of acute perforating appendicitis that have induced many surgeons in this country to urge immediate operation in *every case* of appendicitis. I cannot subscribe to this doctrine. I have seen too many of the other kind of cases get well without an operation; but when we have a case in which the symptoms are ushered in with great rapidity, when the pain is atrocious, and the temperature high, the pulse rapid (from 110 to 120), when vomiting is persistent, and constipation insuperable, when the belly is tender, and the right iliac region hard, and, above all, when the patient's face indicates mortal illness; when he looks, indeed, like a man shot with a bullet through the belly; then one may know that perforation, with acute septic peritonitis, is imminent or has already taken place. Operation is then to be done at once, for delay is fatal. Remove the appendix, wash out the belly with warm normal salt-solution, wash it out over and over again, and then drain with strips of iodoform-gauze or tubes, or both. Good washing and free drainage give the only chance for life. These cases are what may be called fulminating appendicitis, or general septic peritoneal infection, and run their course quickly. The whole tale is told usually in 48 hours.

I have gone over, in a very brief and imperfect way, three forms of appendicitis, to distinguish them from the variety presented in the present paper. The cases reported are known as relapsing, or recurrent, or chronic appendicitis, the last name, to my mind, being the most appropriate.

An individual may have an attack of appendicitis more or less severe and the symptoms may gradually subside and disappear, and it is very possible he may never have a second attack; but if the first seizure is at all severe, it is likely that the appendix and parts around it are never entirely restored to their original condition, and at variable intervals of time the attack will recur, with greater or less violence. No one can foretell, from the history of the first attack, what the nature of the second attack will be, or when it will occur. I have seen three years intervene between the first and second seizures, and then a savage attack ensue. Dr. George W. Gay, of Boston, who has written a clever article on the subject, reports an interval in his own case of 17 years between the first and second attacks. But the pathologic changes caused by the first attack may disappear and a second seizure never come on, and a patient is entitled to that chance, if he so decides. But if the attacks are repeated, and especially if the intervals between them are becoming shorter, and the attacks more violent, then the appendix should be removed. The next attack may be fatal, or at least the man becomes a hopeless invalid.

Ever since Escherich discovered the microbe which he called the bacillus coli communis, it has been almost conclusively demonstrated that this bacillus is the genesis of a certain number of maladies, and the chief among them is appendicitis. This microorganism has its domicile in the digestive tract of man and animal, extending from the mouth to the anus. It was for a time regarded as not only inoffensive, but positively useful in the animal economy, but it has been discovered that, under certain circumstances, this microbe may become very virulent and hurtful. Any morbid condition of the bowels makes it virulent; inflammation, obstruction, strangulation, diarrhea, or constipation may render this bacillus virulent. Constipation is a common cause; indeed a very large proportion of



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the cases of all kinds of appendicitis that I have seen were subjects of habitual constipation.

The bacillus coli is generally found in cases of appendicitis, alone, or sometimes associated with other pathogenic germs. The pathologic conditions, following one or more attacks of appendicitis, may be partially gathered from the report of my cases. The appendix may be fastened like a strap across the cecum, interfering with the peristalsis of the gut; it may be fixed by adhesions to other parts; it may be bent upon itself and its lumen occluded by kinking; a portion of the canal may be obliterated and closed at its cecal end, and the distal end distended to several times its natural size and filled with mucus or pus, or both; a small abscess may be found around the appendix, walled off strongly by a barrier of well-organized fibrin; or else, it is said, a foreign body may occupy its canal. I have never seen the last; I have seen soft fecal matter lying in the canal, and several times hard dry balls of fecal matter. In one case in Staunton, Va., in which I operated for acute appendicitis on a physician's son, the doctor opened the appendix before I completed the operation, and found what looked like two cherry-stones. Two little, round, smooth balls rattled in a dish as cherry-stones would be expected to do, and the mother stated, at the time, that her son had eaten pickled cherries a few days before. I afterward found, when I mashed the supposed seeds, that they were dry, hard fecal masses. In another patient, a young child, upon whom I operated for acute appendicitis for Dr. Moseley, of Richmond, a small, white, kidney-shaped substance, supposed to be a bean, was found in the discharge; this also proved to be fecal matter and fat. I know, of course, that foreign bodies are found in the appendix, but in the 36 cases of operation in my hands I have never seen one.

It is naturally asked, Is medical treatment in these cases of no avail? I confess, when I recall the pathologic conditions found in my cases, that medical means, to my mind, can be expected to help but little, if at all. In the present state of the science of medicine, one cannot expect them to overcome the difficulties that I have just now stated. But it may be urged that the cases may be only of moderate intensity, and the pathologic changes may be slight. Unfortunately we cannot always tell by the symptoms and duration of the attack how much mischief is done to the parts. An apparently slight and insignificant attack may leave the appendix and parts around it hopelessly crippled and diseased, while an apparently savage attack results in trifling mischief. I have operated after two or three comparatively slight attacks, and found the parts so matted and diseased as to tax all my skill, and only after hard work of an hour and a half completed the task; and I have operated when from severe and lasting symptoms I anticipated great trouble, and found but slight disease, and completed the operation in a few minutes. However, I am not opposed to medical measures. I confess, as I say, when I recall the state of the parts as I have seen them, I cannot feel hopeful of any treatment short of the knife. Prolonged rest in bed, rest not for days but for weeks, a restricted and regulated diet, purgatives, and counter-irritation with iodin and blisters, massage, and an intestinal antiseptic, as, *e. g.*, salol, constitute the chief remedies, and, through them, individuals who have had one attack have escaped a subsequent one. It is only fair to say that persons who have had one attack, and who have not received the foregoing remedies, but followed their usual course of life, have also escaped a second attack. I am frank to say, however, that I believe the former are more likely to escape than the latter.

The first case reported was not one of good surgery. The appendix should have been removed. That the patient got well, and has remained well for several years, is evidence rather of good luck than good surgery. These conditions, as is well known, are sometimes confounded. The case teaches, however, the value of ferrous sulphate in preventing reunion of separated parts, a fact that I have had repeatedly demonstrated to me before and since that time.

Cases V and VII show the hazard of leaving a raw surface, as the stump after castration in women, unprotected. It would be better to paint the raw surface over with the iron spoken of, touch it with a hot iron, or a hood of peritoneum from some neighboring tissue may be used.

Cases II, VI, VIII show the influence tubular and ovarian diseases may have upon the appendix.

Concerning Case XVII, I think it is not too much to say of this, my only fatal case, that he would probably have recovered if the operation had been done in a well-appointed modern hospital.

(To be concluded.)

## UNINTERRUPTED ANESTHESIA IN OPERATIONS UPON THE FACE AND MOUTH.[1]

BY EDMOND SOUCHON, M.D.,
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ALL surgeons know the trouble, anxiety, and danger of operating upon the face and mouth on account of the necessity of removing the face-piece through which the anesthetic is administered so as to uncover the field of the operation and enable the operater to proceed; soon after the removal of the face-piece the patient recovers from the effects of the anesthetic and the operator has to stop to

[1] Read at the meeting of the Southern Surgical and Gynecological Association at Washington, D. C., on November 12, 1895.

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allow the face-piece to be reapplied; and so on during the whole of the operation. All these drawbacks and delays become very much worse when the patient happens to be one of those unfortunates who respond badly to the effects of the anesthetic, or who often wake up quickly from a deep anesthesia and become almost unmanageable. It is a very sorry sight, that of an operation half completed, and an unruly patient bleeding freely and spurting blood all around by the wild movements of his head. His life is then at stake from the impossibility of completely controlling the hemorrhage all the while and of completing the operation in time.

It has been my ill-luck to have once encountered such a case, and the impression was such as to make me determine that henceforth I would control my patient by safe and uninterrupted anesthesia. Junker's inhaler is not equal to such emergencies, because, unless the bulb is pressed very gently, the liquid anesthetic is forced into the pharynx. I therefore devised an apparatus to that end, reducing the pain, the bleeding, the shock, and the duration of the operation to a minimum.

The apparatus was called the *Anesthetizer* or *Anesthetic Injector*, and its description was published in the *Journal of the American Medical Association*. Its feature was that neither the inlet-tube nor the outlet-tube dipped into the liquid, so that it was impossible for any liquid anesthetic to be injected into the patient's pharynx. But its drawback was that ether alone could not be used, because it was too freely diluted with air to have a thorough anesthetic effect. Besides, the mixture of air and chloroform was also rather diluted, and, should a particularly refractory case present itself, there was no positive means of increasing the strength of the dilution at will and as necessity required. These inconveniences have been overcome in the new, improved apparatus. It is an injector, truly, and not an inhaler as we understand it.

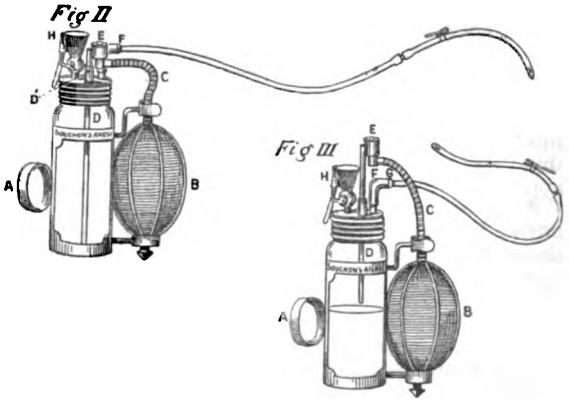
In this apparatus the inlet-tube dips into the liquid so that the air in passing out through the outlet-tube is much more charged with the vapors of the anesthetic. But here at once with this dipping of the inlet-tube came two difficulties: First, upon releasing the compression on the bulb, the liquid was aspirated into the bulb; and, second, the liquid anesthetic was thrown through the outlet-tube into the patient's pharynx. It required the utmost care and gentleness to avoid these accidents, and there were cases in which the full power of the apparatus had to be brought to bear to maintain the patient uninterruptedly anesthetized.

These difficulties, therefore, had to be conquered, and they have been by placing a proper valve on the course of the inlet-tube, and by maintaining a certain distance between the level of the liquid in the bottle and the point of exit of the fixed brass portion of the outlet-tube. That distance must not be more than one-half of the height of the receptacle. It took much experimenting and close observation before this was found out. Diaphragms, perforated tubes, etc., were used, but in vain, as they all failed when the liquid exceeded a certain amount. Now, a certain quantity is necessary, otherwise it would compel a too frequent replenishing. Of course, the size of the rubber bulb is an important factor; if too small, it would not inject a sufficient amount of the anesthetic; if too large, it produced such a splashing in the bottle as to require but a small amount of liquid; otherwise, if too much, the liquid would be injected into the pharynx.

The bulb is 7½ in. in circumference at its middle. The size of the bottle is also to be considered; it is 6¼ in. in circumference or 1⅞ in. in diameter. Therefore the size of the bottle and of the bulb, the amount of liquid in the bottle, together with the distance of the surface of the liquid from the brass and fixed orifice of the outlet-tube, are the correlative factors.

*Description of Apparatus.* The present improved apparatus is considered perfect in all particulars. It is

SOUCHON'S IMPROVED ANESTHETIZER




composed of a glass cylindric receptacle, with a frame supporting a ring, A, for the thumb and a rubber bulb, B, so that it can be worked with one hand. From the

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bulb originates a rubber tube, C, wrapped with coiled wire to prevent it from bending; it ends in the inlet-tube, D; just at the point of junction at E is a ball-valve which prevents the liquid from entering the bulb when the pressure upon the latter is released. The inlet-tube extends through the liquid anesthetic to the very bottom; its lower end is bevelled to prevent the orifice from being stopped by coming in contact with the bottom of the receptacle.

This inlet-tube slides up and down through another shorter tube, $D^1$, so that it can be drawn well up above the level of the liquid anesthetic, thereby diminishing the strength of the vapors injected through the outlet-tube into the pharynx. This feature makes the apparatus thus set an anesthetizer of the first model.

There is a circular line on the receptacle showing how much, and no more, liquid anesthetic should be poured in without running the risk of injecting liquid through the outlet-tube. This line corresponds to the middle of the receptacle from the bottom to the upper surface of the lid. This quantity will suffice to keep a patient anesthetized for nearly two hours with chloroform alone, one hour and a half with a mixture of equal parts of chloroform and ether, and about an hour with ether alone. The receptacle is closed by a metallic lid that screws around its neck; a washer makes it air-tight.

From this lid springs the metallic portion of the outlet-tube, F; it originates directly from the under surface of the lid; it is ½ in. in diameter inside and one and one-half inch in height; after a *very sharp* curve of 90°, it terminates by an orifice of not less than $\frac{3}{16}$ in. Repeated experiments have determined these dimensions; any decrease in them increases the chances of sputtering and of injecting liquid into the throat.

To this metallic portion is attached a rubber tube, 30 in. long, so that the anesthetist can hold himself well out of the way of the operator, leaving more room and play for those directly concerned in the operation. This tube should be sufficiently rigid not to bend too easily; its interior diameter should be $\frac{3}{16}$ in. Its last eight inches are formed by an ordinary rubber catheter, No. 13 English, connected to the main tube by a piece of glass or metallic tubing; this nasal segment can be changed to a smaller one when operating upon children. It is provided with a clasp, seven inches from the extremity; this clasps the nostrils and holds the tube in proper position. The receptacle is readily emptied through the outlet-tube after the operation is over.

The lid is provided with a funnel through which the anesthetic is poured into the receptacle, and through which it can also be emptied after being used. To the edge of the funnel is adapted a clasp, with a long arm that answers for a hook by which the apparatus can be suspended from a buttonhole; the clasp is to catch on to the cloth of the gown when there is no button-hole for the hook. Thus the anesthetist may have both hands free, resting or helping for a while.

*Modus Operandi.* When the apparatus is to be used it is first filled with the anesthetic up to the circular line; that represents 2½ ounces. The nasal end of the tube is smeared with vaselin. If desirable, an aseptic thin towel in a single thickness can be thrown over the apparatus without interfering with the proper working.

After the patient has been thoroughly anesthetized by any of the ordinary methods, the face-piece is removed, the tube is introduced through the nose until the clasp is reached, a distance of 7 in., and the clasp is made to grasp the nostril and fix the tube; the end of the tube is then in the *lower pharynx;* that is necessary because, if too high up, the patient, breathing through the mouth, would not inhale a sufficient amount of the anesthetic.

The anesthetist places himself to one side or other of the middle of the patient, so as to feel the radial pulse, observe the respiration, and be well out of the way of the operator and his assistants. By compressing the bulb the apparatus is set to work. It injects *only the vapor*, and no liquid anesthetic into the pharynx, *regardless of the force used on the bulb.* The bulb, however, should be compressed gradually, not jerkingly, specially if it causes coughing or recoil of the patient. By compressing the bulb more or less quickly and thoroughly the amount of anesthetic is graduated. As much as possible the compression should take place at the time of each inspiration. This rule compels a closer watch on the respiration.

It takes very little anesthetic to maintain anesthesia when a patient has already been well anesthetized. It is important not to keep on compressing the bulb, if the patient does not re quire it, or if the stage or procedure of the operation is not painful. Much harm is often produced by all methods by unnecessarily prolonged *deep* anesthesia, which harm is often passed under the name of shock, exhaustion, etc.

At times, when the patient expires, a resistance is felt upon pressing the bulb; of course, all force on the bulb should be suspended until it is felt that the resistance has yielded and the patient is about to inspire.

*Anesthesia with Chloroform Alone.* When chloroform alone is used the effects are at their best, quick, and thorough. Greater care should be exercised when chloroform is used alone. It is then that it would perhaps be prudent to draw the inlet-tube up above the level of the liquid; the dilution is then diminished.

*Mixture of Chloroform and Ether.* The mixture of equal parts of chloroform and ether is the one I prefer. It has the advantage of the quick and thorough effects of chloroform and the stimulating action of the ether.

*Anesthesia with Ether Alone.* The use of ether alone in the apparatus at first excites the throat if the patient has been chloroformed, but this soon passes off, and anesthesia is well maintained throughout the operation. Of course, those patients who yield with difficulty to the ordinary method of anesthetization will be more troublesome with ether. It requires more ether, more complete and frequent compressions of the bulb, and a closer observation of the inspirations than when chloroform alone is used. We should remember, however, that ether, especially if used alone, is contraindicated in operations about the face, head, and neck, because of the great congestion which it usually produces.

*Proportions of Anesthetic Vapor and Air.* Mr. Hermann Fleck, Ph.D., Instructor of Chemistry in the Harrison Chemical Laboratory of the University of Pennsylvania, was kind enough to determine the proportions of anesthetic vapors and air at each compression of the bulb. When the tube is above the level of the *chloroform* the expelled air contains 8.2 per cent. of vapor; when the tube extends through the chloroform, the expelled air contains 11.9 per cent. of vapor, or about one-third more. When the tube is above the level of the *ether* the expelled air contains 18 per cent. of vapor; when the tube extends through the ether

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the expelled air contains 37.2 per cent., or double the quantity. It is noticeable that the expelled air is much more charged, about three times more, by passing through ether than when passing through chloroform, and only about twice when the tube does not extend into the anesthetic. In all cases, of course, the dilution after it passes from the outlet-tube and is inhaled is from 4 to 6 times weaker.

*Sundry Remarks.* The amount of anesthetic consumed is very small, about 1 ounce of chloroform per hour, but 2½ ounces of ether for the same length of time. There is no external evaporation, and this will be greatly appreciated by the operator and his assistants.

The apparatus works very well also when the head is lowered, as in the Rose position.

Should the operation involve the two nasal cavities at the same time when the tube might be in the way, the tube could be introduced through the mouth into the lower pharynx, care being taken to prevent the tube being bitten by using a wedge or gag, or by connecting the end with a metallic tube, or, best, with a disinfected male metallic catheter, which the teeth could not crush.

The end of the flexible tube may be connected with the apex of the face-piece or cone placed over the mouth and nose and the vapor of the anesthetic forced into it. But the face-piece must fit tightly and exclude the air, because the air from the bulb has already diluted the chloroform. For that reason, ether used thus very seldom produces anesthesia.

Anesthesia may be produced from the outset without previously using a face-piece by introducing the tube at once through the nose into the lower pharynx. This does away with all possible nasal reflexes, the effects of which have been so graphically demonstrated by Professor Laborde, the successor of Claude Bernard and Paul Bert at the College de France, in Paris.

The lower end of the bulb is so arranged as to allow it to be connected with a piece of tubing leading to a bag of oxygen, if desired.

For obvious reasons it is important that all connections should be air-tight.

Care should be taken that no bends or kinks form in any part of the tubes, or this will interfere with the proper working of the apparatus.

Sometimes the little ball-valve in the tube becomes adherent to the margin of the orifice inside and the bulb does not empty; by striking on the tube at that point the valve becomes loose again.

The bulb is detachable and may be removed whenever this becomes necessary, that is, when it loses its firmness and elasticity, and when the valves get out of order. This is determined by pressing tightly the tube of the bulb and compressing the bulb; if the air is then expelled it is because the valves are out of order. The manufacturer can supply a new bulb by mail.

Every part of the apparatus can be taken apart to be thoroughly cleaned and sterilized.

The apparatus is most useful also in operations about the head and neck, allowing the operator and his assistants more room, and sparing to all around the unpleasant odor of the anesthetic.

The device has been used in the Charity Hospital of New Orleans by about all the surgeons, Drs. Matas, Delaup, Martin, Bloch, etc., also by Dr. De Roaldes in the Sanitarium. I have used it for Dr. Lange, in New York, in the presence of Drs. Halsted and Fenger, and in the Jefferson Clinic, in Philadelphia, for Drs. Keen and Hearn, in the presence of Drs. Da Costa and Barton. All these surgeons expressed themselves well pleased with the results.

No ill effects have ever resulted from the direct contact of the vapors of the anesthetic with the mucous membrane of the pharynx or larynx.

*Conclusions.* This apparatus is the *only one* with which there is *no risk of injecting liquid anesthetic in the pharynx regardless of the force applied to the bulb.* Its safety, simplicity, compactness, portability, efficiency, and easy management speak for themselves.

Its use results in a great saving of time, pain, bleeding, and shock to the patient, thereby contributing materially to the saving of life in operations which for the most part are long and bloody, and often bring the patient to death's door. It also provides a great saving of mental strain to the surgeon, who can proceed rapidly and uninterruptedly with the operation.

## REPORT OF 111 ADDITIONAL CASES OPERATED UPON WITH THE ANASTOMOSIS-BUTTON.

BY J. B. MURPHY, M.D.,
OF CHICAGO;
PROFESSOR OF CLINICAL SURGERY, COLLEGE OF PHYSICIANS AND SURGEONS, CHICAGO; PROFESSOR OF SURGERY, POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL; ATTENDING SURGEON TO AND PRESIDENT OF THE MEDICAL STAFF OF COOK COUNTY HOSPITAL; ATTENDING SURGEON TO ALEXIAN BROTHERS' HOSPITAL; PRESIDENT OF THE NATIONAL ASSOCIATION OF RAILWAY SURGEONS; FELLOW OF THE CHICAGO ACADEMY OF MEDICINE, ETC.

(Concluded from page 538.)

BACON'S OPERATION. This operation was described by Dr. J. B. Bacon,[1] and has been performed twice. The first operation was performed by Dr. Bacon July 8, 1893, for a specific stricture of the rectum. Two years and three months have now elapsed, and there is not only no return of the stricture, but the caliber of the rectum has enlarged since the operation, the infiltration has disappeared, and the rectal walls are now soft and pliable; it is

[1] Medical Record, Dec. 10, 1892.

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## GASTROENTEROSTOMY. (METHOD: MURPHY BUTTON.)

| No. | Date. | Publication. | Operator. | Diagnosis. | Operation. | Position. | Result. | Cause of death. | Size of button. | REMARKS. |
|---|---|---|---|---|---|---|---|---|---|---|
| 28 | 1894. | Canada Lancet, Sept., 1894 | Meek, H., London, Ont. | Carcinoma of pylorus. | Gastroenterostomy. | S. S. | R. | ..... | No. 4. | Button not found Postmortem, 11 months later: Opening over 1 in. in diam.; no contraction; no adhesions. Button not found. |
| 29 | Apr. 23 July | Col. Climat., Mar., 1894. | Wooding, B. F., Trinidad, Col. | Carcinoma of pylorus and duodenum. | Gastroenterostomy. | S. S. | D. | Shock. | ..... | Patient in extreme condition; never rallied from shock. |
| 30 | Oct. 13 | Col. Climat., Mar., 1895. | Parkhill, C., Denver, Col. | Carcinoma of pylorus. | Gastroenterostomy. | S. S. | D. | Shock. | No. 4. | Anastomosis quickly made between posterior wall of stomach and ileum; patient very weak; died shortly after operation. |
| 31 | Oct. 20 1895 | Med. Sentinel, Mar., 1895. | Fulton, J. S., Astoria, Ore. | Carcinoma of pylorus. | Gastroenterostomy. | S. S. | R. | ..... | No. 4. | Patient died suddenly on 16th day from marasmus; postmortem: no peritonitis; union perfect; button found free in descending colon. |
| 32 | June 7 1894 | Reprint from Ann. de la Assoc. Med. Chir. | Lenger, Liege, France. | Carcinoma of pylorus. | Gastrojejunostomy. | S. S. | R. | ..... | ..... | Button passed 18 days after operation; good recovery. |
| 33 | . ..... | Med. Sentinel, May, 1895. | Smith, A.C., Portland, Ore. | Carcinoma of pylorus. | Gastroenterostomy. | S. S. | D. | Exhaustion. | ..... | Patient died from exhaustion forty-eight hours after operation. Postmortem: Perfect adhesion of approximate parts. |
| 34 | Nov. 20 | Lancet, Lond., May 4, 1894. | Lane, J. E, London, Eng. | Carcinoma of pylorus. | Gastroenterostomy. | S. S. | R. | ..... | No. 4. | Button not found; patient gained 46½ pounds in weight in 6 months after operation. |
| 35 | Aug. 1 | Not published. | Silver, H. M., New York. | Carcinoma of pylorus. | Gastroenterostomy. | S. S. | D. | Exhaustion 8th day. | ..... | Necropsy: Button still in position; method of its pressure-atrophy well illustrated. |
| 36 | ..... | " " | Kurtz, Carl, Los Angeles, Cal | Carcinoma of pylorus. | Gastroenterostomy. | S. S. | D. | Exhaustion 24 hours. | ..... | Button well in place. |
| 37 | ..... | " " | Vander Veer, A., Albany, N. Y. | Carcinoma of pylorus. | Gastroenterostomy. | S. S. | D. | Exhaustion 3d day. | No. 3. | Advised not to be operated on, on account of extreme condition; comfortable after operation. Postmortem: Button found in excellent position; union quite pronounced; all surroundings favorable. |
| 38 | 1895 | Belgian Surgical Society. | Rouchet, P., Antwerp, Belg. | Tumor of pylorus. | Gastroenterostomy. | S. S. | R. | ..... | .... | Dr. Rouchet recommends using 2 buttons; 1 joining end of jejunum to posterior wall of stomach, and the other joining end of duodenum to side of jejunum. |
| 39 | Jan. 25 | Lancet (London), May 18, 1895. | Allingham, Herbert W., London, Eng. | Carcinoma of pylorus. | Gastroenterostomy. | S. S. | D. | Exhaustion 4th day. | ..... | Necropsy: Stomach enormously dilated; Murphy's button in no way blocked; perfect union; no leakage; no peritonitis. |
| 40 | Jan. | Not published. | Dunne, James H., Minneapolis, Minn. | Carcinoma of pylorus. | Gastroenterostomy. | S. S. | R. | ..... | ..... | Button voided 14th day. Died 3 months later. Necropsy; Extensive carcinoma of pylorus; opening between stomach and intestine larger than button used; soft union; no cicatricial tissue. Such a union could not contract. |
| 41 | June 26 | " " | Davis, J. A., Chicago, Ill. | Carcinoma of pylorus. | Gastroenterostomy. | S. S. | D. | Exhaustion 24 hours. | ..... | Button in perfect position; no peritonitis; patient in extreme exhaustion before operation. |
| 42 | June 5 1893 | " " | Stewart, R. W., Pittsburg, Pa. | Carcinoma of pylorus. | Gastroenterostomy. | S. S. | R. | ..... | No. 4. | Button voided 13th day; patient discharged from hospital in 3 weeks. |
| 43 | July 25 1895 | Centlbl. f. Chir., No. 37, 1894. | Zielewicz. | Carcinoma of pylorus. | Gastroenterostomy. | S. S. | D. | Perforative peritonitis. | ..... | All went well until 7th day; then sudden abdominal pain, collapse, death; button found in abdomen; gastric perforation as if cut; patient had eaten ½ pound of sausage that day. |
| 44 | Jan. 25 | Practitioner, June, 1895. | Treves, F., London, Eng. | Malig. tumor of pylorus. | Gastrojejunostomy. | S. S. | D. | Exhaustion. | ..... | Patient very low before operation; did not rally. |
| 45 | Apr. 19 | Practitioner, June, 1895. | Treves, F., London, Eng. | Carcinoma of pylorus. | Gastroenterostomy. | S. S. | R. | ..... | ..... | Recovery uneventful; the operation was of the simplest character. |
| 46 | 1894 Feb. 20 | Bull. de la Soc. de Chirurg., 1894, p. 838. | Terrier. | Obstruction of pylorus. | Gastroenterostomy | S. S. | D. | Cachexia. | ..... | Patient in very low condition; died 4th day; no peritonitis; perfect union. |
| 47 | July | Ann. Surg., xx, 70. | Van Arsdale, W. W. | Carcinoma of pylorus. | Gastroenterostomy. | S. S. | D. | Inanition. | ..... | Button found in stomach; death on 10th day, possibly due to constriction of intestine by mesocolon; union perfect. |
| 48 | Nov. 11 | Gaz. Hebd., Mar. 30, 1895. | Villard and Jabouley. | Carcinoma of pylorus. | Gastroenterostomy. | S. S. | D. | Exhaustion. | ..... | Woman aged 77 years; very feeble; died 3d day; no peritonitis. |
| 49 | Sept. 26 | Gaz. Hebd., Mar. 30, 1895. | Villard. | Carcinoma of pylorus. | Gastroenterostomy. | S. S. | R. | ..... | ..... | Button not found; recovery uneventful; condition good Feb. 1895. |
| 50 | Jan. 4 | Gaz. Hebd., Mar. 30, 1895. | Poncet. | Carcinoma of pylorus. | Gastroenterostomy. | S. S. | D. | ..... | ..... | Death on 2d day, attributed to bad general condition of patient. |
| 51 | ? | Rev. de Chir., Feb. 10, rep. in Soc. de Chir., Dec. 1894. | Quenu. | Carcinoma of pylorus. | Gastroenterostomy. | S. S. | D. | Peritonitis. | ..... | Death on 2d day; button found imperfectly closed. |
| 52 | 1895 | Revue de Chir., Sept. 1895. | Chaput. | Carcinoma of pylorus. | Gastroenterostomy. | S. S. | R. | ..... | .. ... | Had to resect thickened wall of stomach. |
| 53 | 1894 Sept. 29 | Beitr. z. klin. Chir., 1895, xiv, 1. | R. v. Frey. | Carcinoma of pylorus. | Gastroenterostomy. | S. S. | R. | ..... | ..... | Button passed 18th day; patient discharged 25th day. |
| 54 | 1895 June 5 | Med. and Surg. Rep., Oct. 5, 1895. | Stewart, R. W., Pittsb'g. | Carcinoma of pylorus. | Gastroenterostomy. | S. S. | R. | ..... | ..... | Button passed 13th day; died July 20, 1895. (Duplicate.) |
| 55 | ..... | Bull de la Soc. de Chir., 1894, p. 652. | Demons. | Carcinoma of pylorus. | Gastroenterostomy. | S. S. | D. | Peritonitis. | ..... | Death in 8 days; carcinoma involving whole stomach; purulent peritonitis. |
| 56 | ..... | Bull. de la Soc. de Chir., 1894, p. 652. | Demons. | Carcinoma of pylorus. | Gastroenterostomy. | S. S. | D. | Peritonitis. | ..... | No autopsy. |
| 57 | Jan. 16 | Hygiea, Mar , 1895. | Borelius, Sweden. | Pyloric disease. | Gastroenterostomy. | S. S. | R. | ..... | ..... | Button not passed 6 months later. |
| 58 | ..... | Hosp. Tidende, July 24, 1895. | Tschirning, Sweden. | Carcinoma of pylorus. | Gastroenterostomy. | S. S. | D. | Exhaustion. | ..... | Autopsy showed button in stomach; union perfect. |
| 59 | ..... | Hosp. Tidende, July 24, 1895. | Malthe, Norway | Carcinoma of pylorus. | Gastroenterostomy. | S. S. | D. | Inanition 3d day. | ..... | Button served its purpose. |
| 60 | Feb. 21 | La France Méd., April 19 1895. | Monod, Charles. | Gastric carcinoma. | Gastroenterostomy. | S. S. | R. | ..... | ..... | Button not found; recovery uneventful. |
| 61 | ..... | Hosp. Tidende, July 24, '95. | Malthe, Norway. | Carcinoma of pylorus. | Pylorectomy. | E. S. | R. | ..... | ..... | Uneventful convalescence. |
| 62 | ..... | Hosp. Tidende, " " | Malthe, Norway. | Carcinoma of pylorus. | Pylorectomy. | E. S. | R. | ..... | ..... | Uneventful convalescence. |
| 63 | ..... | Hosp. Tidende, " " | Malthe, Norway. | Carcinoma of pylorus. | Pylorectomy. | E. S. | D. | Peritonitis. | ..... | Malthe omitted suture on posterior side; had fistula form, and patient died 3 weeks later. |
| 64 | July 19 | Rev. de Chir., Oct. 1895. | Quenu, Paris, France | Carcinoma of pylorus. | Gastrojejunostomy. | S. S. | R | ..... | ..... | Recovery good; button passed July 23d. Impossible to anticipate |

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## CHOLECYSTDUODENOSTOMY FOR CHOLELITHIASIS. (METHOD: MURPHY BUTTON.)

| No. | Date. | Publication. | Operator. | Diagnosis. | Operation. | Position | Result. | Cause of death. | Remarks. |
|---|---|---|---|---|---|---|---|---|---|
| 39 | Nov. 4 1894 | Col. Climat., Mar., 1895. | Parkhill, C., Denver, Col. | Cholelithiasis with cholecystitis. | Cholecystduodenostomy. | S. S. | D. | Peritonitis. | Contents of septic gall-bladder escaped into peritoneum during operation; button No. 4 used. "Death in 4 days from peritonitis," probably produced by bacillus coli communis which escaped from gall-bladder. |
| 40 | Oct. 17 1895 | Lancet, London, March 23, 1895. | Swain, Paul, Plymouth, Eng. | Cyst of gall-bladder. | Cholecystduodenostomy. | S. S. | R. | ..... | Button not found. Patient had some elevation of temperature after operation. December, patient in good condition. |
| 41 | March | Not published. | Roskey, A. E., Portland, Or. | Occlusion of common duct. | Cholecystduodenostomy. | S. S. | R. | ..... | Gall-bladder contained about 1 pint of fluid; button passed on 11th day. Cause of obstruction could not be determined. Six months after patient had gained much in weight; "fat, hale, and hearty." |
| 42 | March | Medical Sentinel, May, 1895. | Smith, A. C., Portland, Or. | Colelithiasis. | Cholecystduodenostomy. | S. S. | R. | ..... | Calculus was impacted in cystic duct; button passed 15th day; patient discharged 20th day. |
| 43 | Sept. 17 | Not published. | Silver, H. M., New York. | Colelithiasis, obstruction of common duct. | Cholecystduodenostomy. | S. S. | R. | ..... ..... | Button not passed up to 35th day, unless it escaped observation. |
| 44 | Apr. 10 | " " | Vander Veer, A., Albany, N. Y. | Obstruction of common duct. | Cholecystduodenostomy. | S. S. | R. | ..... | One large gall-stone; button passed 12th day; jaundice disappeared. Present condition (July 24, 1895), good health. |
| 45 | Feb. 5 | " " | Ohage, Justus, St. Paul, Minn. | Cholelithiasis. | Cholecystduodenostomy. | S. S. | R. | ..... | Button not found up to April 3, 1895. Patient in excellent condition. |
| 46 | Mar. 3 | " " | Ohage, Justus, St. Paul, Minn. | Cholelithiasis. | Cholecystduodenostomy. | S. S. | R. | ..... ..... | Button not found up to April 3, 1895. Patient in excellent condition. |
| 47 | ..... | " " | Dunn, J. H., Minneapolis, Minn. | Cholelithiasis. | Cholecystduodenostomy. | S. S. | R. | ..... | |
| 48 | Sept. 21 | " " | Bryan, C. H., Chicago, Ill. | Calculus, common duct. | Cholecystduodenostomy. | S. S. | R. | ..... | Jaundice disappeared 3 weeks after operation; patient up and feeling well; stone found impacted low down in common duct; could not be displaced. |
| 49 | ..... | Hosp. Tidende, B. 4, Bd. ii, p. 746, 1894. | Munter, H. | Cholelithiasis (infected). | Cholecystduodenostomy. | S. S. | R. | ..... | Button voided 23d day. |
| 50 | Oct. 22 1895 | Not published. | Owens, Edm'd B., Dixon, Ill. | Cholelithiasis. | Cholecystduodenostomy. | S. S. | R. | ..... | Three-hundred gall-stones removed. Uneventful recovery. |
| 51 | July 4 1894 | Wis. State Med. Soc. | Ladd, George D., Milwaukee. | Cholelithiasis. | Cholecystduodenostomy. | S. S. | R. | ..... | Patient had pain after operation; celiotomy to ascertain cause. Found perfect union; no button found in ileo-cecal valve. Calculi all removed at time of operation. |

## CHOLECYSTOSTOMY WITH LONG DRAINAGE BUTTON.

| No. | Date. | Publication. | Operator. | Diagnosis. | Operation. | Position | Result. | Cause of death. | Remarks. |
|---|---|---|---|---|---|---|---|---|---|
| 3 | Nov. 13 1894 | Not published. | Vander Veer, A., Albany, N. Y. | Cholelithiasis. | Cholecystsotomy. | ..... | R. | ..... | Long button made use of; operation exceedingly simple. Button came away on 11th day; wound healed in 3 weeks. |

## CHOLECYSTDUODENOSTOMY FOR MALIGNANT DISEASE. (METHOD: MURPHY BUTTON.)

| No. | Date. | Publication. | Operator. | Diagnosis. | Operation. | Position | Result. | Cause of death. | Remarks. |
|---|---|---|---|---|---|---|---|---|---|
| 9 | 1895 Feb. 3 | Col. Climat., Mar., 1895. | Cochems, F. W., Salida, Col. | Sarcoma, cystic duct. | Cholecystenterostomy. | S. S. | R. | ..... | Death 3 weeks later from exhaustion. |
| 10 | ..... 1893 | Amer. Med.-Surg. Bulletin. | Schachner, Aug., Louisville, Ky. | Malignant obstruction. | Cholecystenterostomy. | S. S. | D. | Death, 36 hrs. | Operation complicated by tear in intestinal wall, outside of button, which was sutured; liver enlarged and hard. |
| 11 | Feb. 19 | Pacific Med. Journ., June, 1893. | Rosenstein, Julius, San Francisco, Cal. | Common duct obstruction. | Cholecystenterostomy. | ..... | D. | Death, 15 days | Post-mortem: Carcinoma of liver; circumscribed abscess around seat of approximation; no union; no peritonitis. It will be noted that the abscess was circumscribed, but it is not clear whether the infection was primary, and prevented adhesions, or secondary, the result of failure of union. As there was no adhesion at seat of approximation, it is fair to presume the infection was primary, otherwise there would be union in some places. |
| 12 | 1894 Dec. 3 | Ann. Surg., xxi, 581. | Shepard, F. J. | Carcinoma of Pancreas. | Cholecystcolostomy. | ..... | D. | Hemorrhage 4th day. | Friable wall of gall-bladder cut through by button. |

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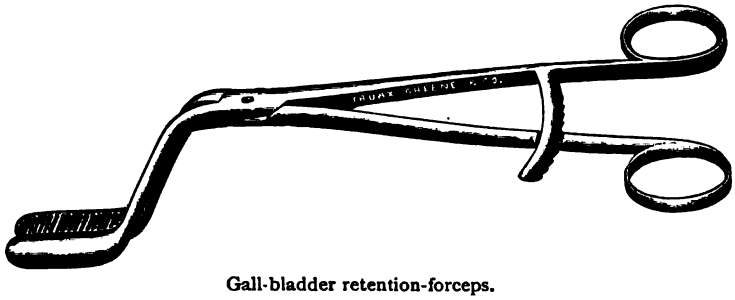
the best result I have ever observed following an operation for stricture of the rectum. Case 148, in this report, was operated upon for a similar condition, with equally gratifying results. The infiltration has almost entirely disappeared, and only four months have elapsed since the operation.

The third case, resection of annular carcinoma of the rectum, also occurred in my practice, and, at the present time, thirteen months after the operation, there are no indications of its return. The fourth case, by von Baracz, of Lemberg, has not been reported in full.

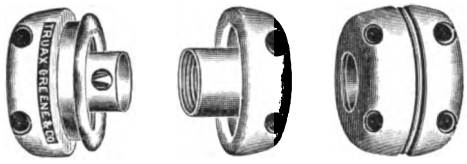
FIG. 1.



Gall-bladder retention-forceps.

RESECTION OF THE RECTUM. This operation has been performed but a very few times by this method, and the number of cases does not warrant us in

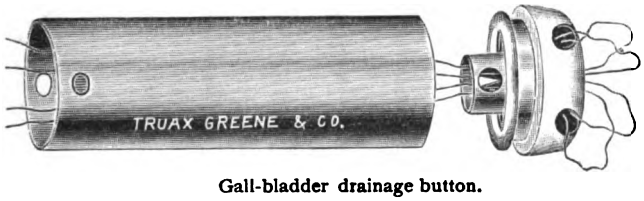
FIG. 2.




Murphy button.

making general deductions. The first Kraske operation by this method was performed by Dr. Henry O. Marcy, of Boston, October 16, 1893. The patient

FIG. 3.

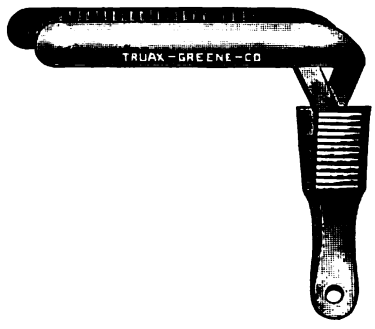



Gall-bladder drainage button.

died about one year later from recurrence of the carcinoma. Another case occurred in my own practice, and was one of annular nonmalignant stricture; the operation was performed January 16, 1894; there has been no recurrence of the stricture up to the present time, two years and nine months after the operation.

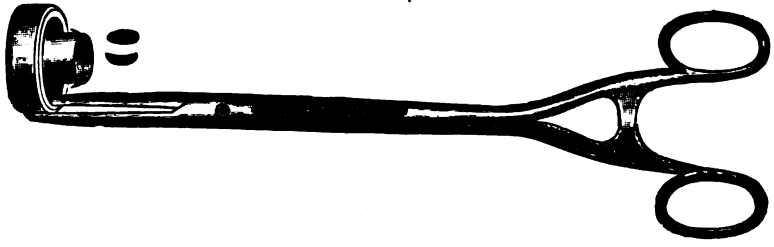
The objections that have been urged against the button are, first, that the size of the opening made is too small, and that stenosis will follow. Experience shows that contraction does not take place in the cicatrix produced by this method of approximation, when the viscus is in full function. The

FIG. 5.




comparative absence of contraction by the button-anastomosis is well illustrated by von Frey (*Beitr. zur klin. Chirurg.*, 1895, xiv). I am convinced that it will not be necessary to employ button No. 4 except in the large intestine, No. 3 being amply large for all small-intestine approximations, and the oblong button may be used in gastro-

FIG. 4.



enterostomy if a larger opening be desired. The second objection is that the button will produce obstruction, as it is a foreign body in the intes-

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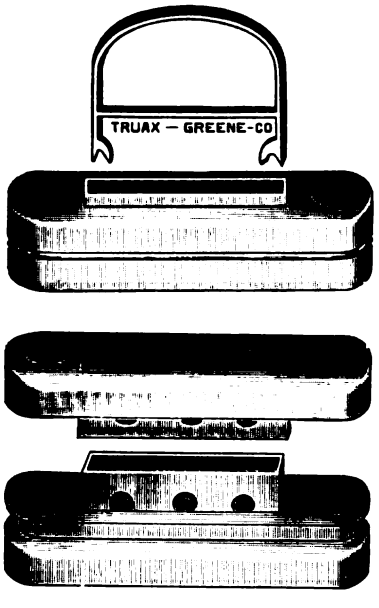
tinal canal. Experience has so far supported my original claim that it will not produce obstruction, except when there already exists a pathologic diminution of the intestinal caliber. There is one case reported in which the button produced intestinal obstruction and perforation. The doctor reported as follows: The patient had repeated attacks simulating intestinal obstruction, and I feel sure that, should I have another case similar to this, I could easily extract the button and prevent the fatal termination. It has not diminished my enthusiasm for this ideal device in the least. The ease and certainty with which it can be applied discounts all its possible dangers. I have heard of another case, still unreported, of which I lack sufficient details for comment, but it was mentioned as a case of obstruction from the button.

FIG 6.




It is a source of great satisfaction to me to find from this large experience—278 cases—that this accident is likely to be a rare one, since, from a purely theoretic point of view, in the beginning of the use of the button it caused me some misgivings.

The third objection is that the caliber of the button will become occluded. There have been three cases reported in which this accident occurred. The occlusion of the opening of the button should not occur if the precaution is taken to keep the contents of the bowels fluid by mild catharsis—a practice I have always followed.

In experiments on the dog, I find that unless care and judgment are exercised the mesenteric vessels that supply a larger portion of the intestine than it is intended to resect are liable to be ligated. In that case gangrene of the intestinal extremities, instead of adhesion and union, will probably be the result.

The most frequent cause of nonunion and of fistulæ following operations for intestinal anastomosis is infection at the time of the operation.

I would respectfully request the members of the profession to kindly send me reports of their experiences with the anastomosis-button, with sufficient details to permit of their being used in the tabulation.

3152 MICHIGAN AVE.

## CLINICAL LECTURE.

### A CASE OF PERNICIOUS ANEMIA DUE TO ILEO-COLIC DISEASE.[1]

BY WILLIAM PEPPER, M.D.,
OF PHILADELPHIA;
PROFESSOR OF MEDICINE IN THE UNIVERSITY OF PENNSYLVANIA.

GENTLEMEN: I have the honor to present to you for study to-day a case of chronic disease, the symptoms of which have been to us a subject of keenest interest and a cause of deep anxiety. The patient is a man of fifty-four years, a farmer, whose father died at the age of fifty years of typhoid fever; his mother died at the age of eighty years of causes unknown. He has four brothers living, three in good health, the fourth being troubled, he says, with rheumatism and edema. One brother died of pulmonary tuberculosis, and one sister died of some tumor of the stomach, probably a carcinoma. Our patient had all the ordinary diseases of childhood, since when he has never been confined to his bed and has enjoyed exceptionally good health. Eight years ago he had a slight attack of rheumatism in his shoulder, which, however, never prevented him from doing his work. Eleven months ago he noticed that the slightest exertion made him weak and provoked shortness of breath and palpitation of the heart. He could not walk for any distance without stopping to rest. At the time this occurred the patient was living just the same as theretofore, had the same duties, ate the some food, had no especial care or worry. This condition persisted during the winter. Four months ago his feet began to swell at night, particularly after he had been on his feet a great deal. He was never a hearty eater, but he ate rapidly and did not properly masticate and insalivate his food. In December of last year, before the swelling of the feet appeared, he lost his appetite, his breathing became heavy, and in the morning he would raise dark-brown coffee-colored mucus, and at times he would also expectorate dark matter during the night. For a long while he had had some symptoms of dyspepsia, with occasional attacks of diarrhea, which, however, were probably only the result of his bad habits of eating. For some years he has had to urinate occasionally during the night, but during the last two years he has complained of frequent nocturnal urination. His bowels have always been regular, except for occasional looseness.

From the foregoing symptoms various diseases may be suggested to you. When we heard that carcinoma

[1] Delivered in the Hospital of the University, October, 1895.

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was in the family, in connection with his age, loss of flesh, cachectic color, and the raising in the morning of dark mucus like coffee-grounds, we feared he might have carcinoma of the stomach and we examined the stomach and its contents to determine whether there was any neoplasm there. As you see, the color of his abdomen is intensely anemic. The stomach is moderately dilated, the lower margin reaching to 1½ in. below the navel and will contain 2½ pints, but not with the most extreme care could any tumor or hardening or thickening be found anywhere in the gastric area. We washed out his stomach with 7½ pints of distilled water and afterward gave him a test-meal, an hour and a half after which the contents of the stomach were expressed for purposes of analysis. The last portion of the lavage came off clear, in fact all was fairly clear, there being only a slight amount of mucus. The gastric contents were tested for free hydrochloric acid and none was found. The tests also showed some reduction of the digestive juices and impairment of the motor power of the stomach-wall. There is no proof, however, that the pylorus is obstructed. The bowels have been rather loose, and vomiting has been absent. I have told you that free hydrochloric acid was absent and we are trying to learn what that sign means. You will remember that earlier observers considered the absence of free hydrochloric acid after a test-meal, coupled with cachexia and loss of flesh, as almost pathognomonic of gastric carcinoma. Further observations, however, have revealed the fact that free hydrochloric acid is absent under other conditions, such as profound anemia and in atrophy of the glands of the stomach connected with no trace of any malignant disease. A continued persistent absence of free hydrochloric acid is, however, as a sign of carcinoma, of some diagnostic value; but the mere absence of acid without the concomitant symptoms cannot be depended upon to establish the diagnosis.

Here is a man of the requisite age, raising coffee-grounds material, losing flesh, growing weak and progressively cachectic, and with no free hydrochloric acid; but the direct exploration of the stomach fails to show thickening or tumor; nor is there any pyloric obstruction so far as I can judge; no dilatation of marked degree, no visible reversed wave of peristalsis, no vomiting of retained fermenting matters. I do not say that you will always find, when there is malignant disease of the stomach, pain, vomiting from mechanic obstruction, gastrectasis, increasing constipation, or even tumor. There may be a carcinoma, not large, in the posterior wall of the stomach, centrally situated, a mural growth; in such a case food can to a certain extent undergo the process of digestion, be propelled past the pylorus, and in connection with such a lesion the only symptoms may be emaciation, cachexia, and failure of digestive power. Although we must always bear in mind the possibility of such a condition, nevertheless, in the absence of positive diagnostic points, we are not justified in allowing our anxiety and fear to run away with us and lead us to believe that carcinoma exists. On the contrary, we should fight until the last moment against the admission of that fatal diagnosis. We see too much of this yielding to anxiety. This is a diagnosis we should not be forced to make until we can demonstrate it; always give the patient the benefit of the doubt. The moment a doctor would tell me that I had carcinoma, while there were still the shadow of a doubt, unless he could demonstrate it, I would have no further use for that physician. Such a diagnosis paralyzes all one's efforts. You cannot try earnestly to relieve a patient whom you think has carcinoma; all you can attempt to do is to make his last moments painless.

This man also had edema of the feet, increasing paller of the surface, and frequency of urination, which has been imperative during the night, calling him up often. He was a farmer, accustomed to rising early and exposing himself to all sorts of weather. With such men nephritis is a common affection. Upon examination of the urine, however, we found it normal; 1018, acid, no albumin, no sugar, and no casts. The edema was not the ordinary edema of nephritis, with puffiness about the eyelids; it was more the edema of a weak heart or of poor blood, coming on at night, particularly after extra exertion during the day. There is, however, no sign of organic disease of the heart to explain this.

If this man has no organic disease of the stomach, liver, kidneys, heart, or lungs to explain these signs, where are we to look for the causes of this progressive weakness and malassimilation? The blood at once suggests itself, and we turn with the greatest interest to this examination. A careful examination has given the following results: Red corpuscles, 1,250,000 in the c.mm.—to 25 per cent. of the normal; hemoglobin 20 per cent.—a reduction of 80 per cent., but corresponding closely to the reduction in the red globules; leukocytes 9000. I beg you in particular to note the corresponding reduction of red cells and hemoglobin in this case, and contrast that with the disproportionate oligochromemia seen in chlorosis. The blood showed a high grade of poikilocytosis—ill-formed and poorly shaped red corpuscles. There were also microcytes, minute globules much smaller than the normal red cells and often more intensely colored. Besides these there were large cells, macrocytes; furthermore, nucleated red cells. Here, then, is a blood that presents an oligocythemia and a corresponding oligochromemia, with dwarfed cells, giant cells, misshapen cells, and nucleated cells. Here is evidence that the whole hemic function is profoundly disturbed. The charts you here see illustrate the conditions I have mentioned.

Such a hemic condition corresponds to the condition of the blood in the disease known as progressive pernicious anemia, a disease that has been studied very closely for the past 20 years, but the real origin and causation of which are still obscure.

When progressive pernicious anemia was first recognized, it was regarded as an absolutely fatal disease, coming without cause, like leukemia and carcinoma, and the other great cachexiæ, and running its course to an invariably fatal result. But we have since learned that while there are some cases of pernicious anemia that run the course I have just stated, there are other cases clinically indistinguishable from them that yield to certain forms of treatment. For this reason, while the disease holds for us still the intense scientific interest it has always presented, a deep study of these cases will lead us to practical improvement in differential diagnosis and treatment.

Let us study together the clinical features of this disease and endeavor to find some adequate cause for it. If you have a case of nephritis you may have a high

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degree of anemia due to the retention of poisonous substances and to the associated tissue-changes. In a case of carcinoma you have also something to explain the anemia. But progressive pernicious anemia is essential; there is no organic disease or lesion to explain it. The symptoms are that the patients feel themselves becoming gradually weak and weaker, the skin meanwhile assuming a pale, slightly lemon-yellow tinge. The emaciation is very irregular; some patients lose a great deal of flesh, but frequently others lose little or none at all. The feet become puffy when the patients stand or walk. There is dyspnea after slight exertion, palpitation of the heart, hemic murmurs, pulsating vessels, occasionally a venous hum, the pulse-rate often rapid. In the present case there is a soft systolic murmur, best heard at the base of the heart, surely hemic. Patients suffer with attacks of headache and vertigo and complain of ringing in the ears. The muscular weakness and pallor increase progressively. These are the familiar features of the disease. The condition of the stomach varies; digestion is impaired, and in some cases tremendously so. There is a tendency to hemorrhages, the mucous membranes bleed easily, and ecchymoses form in the retina frequently, in the serous membranes, brain, and other organs, sometimes on the skin, hemorrhages probably partly due to arterial degeneration and partly to capillary embolism. As a rule the disease presents but little disturbance of temperature, yet there are not infrequently sharp irregularities, and I have noticed a slow febrile movement as though there were some obscure toxic state of the system causing the variation. Nervous symptoms are not uncommon; paresthesiæ of the extremities, sensation diminished and retarded, the knee-jerks diminished or even lost, and in some cases an almost typical ataxic gait. These symptoms, however, are also found in intense secondary anemias, and post-mortem examinations reveal scattered spots of degeneration in the cord and systemic sclerosis of the posterior columns, secondary lesions due probably to some toxic influence. As the case advances the patients fall into an extraordinary condition of debility, with greatly impaired digestive power. The blood becomes almost watery, general edema appears, intercurrent attacks of diarrhea, hemorrhages, and then death.

During all this time you find that the lymphatic glands have not swollen at all. No evidence of organic disease is given. It is true that the very poor condition of the blood leads to an almost universal fatty degeneration, the result of deficient oxygenation. The heart and liver may thus become very fatty, but you will find no organic lesion to primarily explain the condition. There will be changes in the medulla of the bones, which appear not yellow but a dark-red, a change due partly to a diminution in the normal amount of fat, and partly to an increase in the number of nucleated red blood-corpuscles. But this again is a change not confined to cases of essential pernicious anemia. The spleen in some cases becomes moderately enlarged, in some cases so conspicuously enlarged that some of these cases have been termed splenic anemia; in many cases the size is not altered. We must remember that in some cases there is a great deal of digestive disturbance, and in the post-mortem cases presented for examination there is sometimes almost complete atrophy of the tubules of the stomach. This shows chronic gastritis with proliferation of cells and increase in the connective-tissue of the submucosa which becomes organized into a dense fibrous layer and which surrounds and grasps the gastric tubules, causing their atrophy in the same way that cirrhosis of the liver will produce atrophy of the hepatic cells. Another change constantly found in bodies in which death has resulted from pernicious anemia is the increased deposition of iron in the liver, pancreas, spleen, and kidneys, particularly in the liver, where the iron is deposited in the peripheral zone of the lobule. This points to a destruction of blood somewhere in the body, probably largely in the portal circulation, the products of which are collected in the liver; and corresponding to this the urine frequently contains pathologic urobilin. In addition the urine may contain an excessive amount of indican; and the total nitrogen-elimination is generally increased, this excretion going hand-in-hand with the excessive breaking down of the body-proteids due to the diminished entrance of oxygen to the tissues.

What are we to think of the cases of severe anemia not secondary to nerve-lesions—of the essential anemias, excluding those in which parasites or atrophy of the gastric tubules are found, the cases in which all the post-mortem changes seem effects and not causes? It seems certain that the dwarfed, deformed, and fragmented corpuscles, the hemoglobinemia, the excess of iron and pigment, point to an abnormal hemolysis, and, furthermore, experimental hemolysis has produced in animals a condition resembling pernicious anemia. On the other hand, the malformed macrocytes appear to be a sign of faulty blood-formation; and the nucleated corpuscles look like perverted attempts of the bone-marrow at hemogenesis. If the causes lie in defective hemogenesis, the remoter causes of this defective blood-formation are entirely obscure. But there is clinical and experimental evidence for conditions which can cause increased hemolysis, and these conditions are the formation in and absorption from the alimentary tract of toxic substances, the nature of which is to us as yet entirely unknown. It seems probable that the products of ordinary fermentation cannot produce this condition; the toxins are of more complex origin and nature.

In approaching the treatment of a case of pernicious anemia, you ought always to attempt to ascertain whether the case before you is one of those connected with atrophy of the gastric tubules. In some of these cases the catarrhal symptoms are marked and the power of digestion profoundly reduced; and such cases may properly be called pernicious anemia of gastric origin. You must not expect to find the stomach always dilated in these cases; sometimes the walls of the stomach contract and the organ feels like a narrow transverse thickened band across the upper part of the abdomen. In other cases the gastric symptoms have been slight, but careful investigation will elicit the fact that, although slight, they have been frequent and of many years' standing. This man has always bolted his food, has for years suffered from occasional attacks of gastric irritation and diarrhea, the motor power of his stomach is impaired, his gastric juices much reduced; his stomach contains no free hydrochloric acid; he can take but little food without distress; his debility is so extreme and his anemia so intense, we are forced to fear that atrophy of the tubules has occurred. If the changes in the gastric mucous membrane have not gone too far,

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some of these cases respond well to treatment directed to the local conditions; but when the anemia is very intense, treatment directed to the alimentary tract will accomplish little.

There are certain general indications. The patient's blood cannot carry enough oxygen to supply his tissues and he surely has no oxygen to waste in muscular exertion; therefore absolute rest in bed is for some weeks imperative, and almost complete confinement to bed is advisable for a considerable period longer. General massage is an excellent adjuvant and should be consistently employed. Inunctions of cod-liver oil, given once daily, have seemed to me to improve nutrition, and they are being given to this patient.

The gastrointestinal tract demands the most careful diet and treatment, and in these matters each case must be studied for itself. This man's diet consists of finely minced Hamburg steak delicately broiled so that all the juices are retained, dry toast or stale bread, and hot milk with a little coffee in it. In the last few days he has seemed to enjoy eating, and he does not suffer from nausea. However the diet may be modified it must be highly nourishing, given in small quantities and often. Hydrochloric acid is generally indicated, and this man is given a couple of drops after each meal. His bowels have been loose, and we have been washing out his colon daily with warm water and following this with an injection of a weak solution of silver nitrate. Were not his stomach so well behaved with his present diet and treatment I should practise gastric lavage, and cases have been reported in which striking results have followed this procedure.

For the blood we have one drug that exerts over many of these cases a most marvellous influence—arsenic. Under its use some cases recover entirely; others improve greatly, only to relapse. The drug must be pushed to the limit of tolerance, 10, 15, or even 20 drops of Fowler's solution thrice daily, guarded with a little opium to counteract the tendency toward diarrhea. You must watch carefully for constitutional signs of overaction, as puffiness under the eyes and gastrointestinal irritation, and should these appear the dose must be reduced. An irritable stomach does not in itself contraindicate arsenic, as the stomach often improves under its influence. But should the drug aggravate the irritability of the stomach it should be administered hypodermically. Iron rarely does good early in the treatment; when convalescence is well established it may be advantageously combined with the arsenic. Lately bone-marrow (of lambs and calves) has been tried in the form of glycerol extracts, in some cases with reported good results. In extreme cases the hypodermic injection of large amounts of normal saline solution, direct transfusion of blood, and the injection of defibrinated blood have all been resorted to, in some reported cases to good advantage. Treatment must be persevered in for a long time after the blood has been brought back to a good condition; and the patient must be kept under the most careful dietetic and hygenic conditions, and guarded in every way against the all-too-frequent relapse. This man has been under treatment nearly a fortnight. He expresses himself as feeling better; his appetite has improved, he bears the large doses of arsenic well, and his blood has gained 7 per cent. in hemoglobin and 100,000 red cells over the estimation on admission.

# ORIGINAL ADDRESS.

## SOME REMARKS ON EUROPEAN SURGERY.[1]

BY W. W. KEEN, M.D.,
OF PHILADELPHIA;
PROFESSOR OF THE PRINCIPLES OF SURGERY AND OF CLINICAL SURGERY IN THE JEFFERSON MEDICAL COLLEGE.

THE Dean has requested me to give you a brief statement of some of my observations during the past summer in the course of a short surgical trip in Europe. I would be ungenerous were I not, first of all, to acknowledge the extremely courteous reception, not only in their clinics, but often also in their homes, which I had from all the surgeons whom I saw, whether they were English, French, German, or Swiss.

The time was when European surgeons paid very little attention to American surgical literature, but I found American surgical text-books and American medical journals on the table of almost every surgeon whom I had the pleasure of seeing, and the names of our best surgeons are known as well in Europe as they are at home.

The general impression made upon me by what I saw was that in matters of scientific research and of original investigations Europe is much in advance of us. The length of the course of study, and the support by the government of Pathologic and Bacteriologic Institutes, combine to foster original investigations in scientific subjects much more than with us. Our young men must necessarily earn their living, and as these investigations require a great deal of time and bring little, if any, direct income, there are but few who can devote their time to science, pure and simple. Another thing which fosters this spirit of original investigation is the governmental control of the Universities, at least on the Continent. Governmental control of the Universities has, as a natural result, that a bright young man, who is an assistant to a distinguished surgeon, is sure to have his ability recognized by promotion; first, to the chair of surgery in one of the minor schools, and, if he still shows ability and industry, of promotion to one of the more important schools. In this country we are obliged to depend wholly on private munificence; and such promotion to other schools than the alma mater of the young doctor is the exception rather than the rule. I am glad to say that in the last few years the establishment of a number of laboratories of research by generous donors is beginning to bear fruit. The recent generous appropriation by the Legislature of Pennsylvania to our own hospital will enable us to establish a similar laboratory of instruction and research. Would that it were so with every school in the land! We should not be jealous of each other, for each one profits by the discoveries made in the laboratory of a friendly rival.

But when it comes to practical surgery, whether it be of mechanical means or operative procedures or of careful antisepsis, I believe that American surgeons are quite the equals of their European brethren. In fact, as to antisepsis at least, I think in this country we are more careful, as a rule, than many of the surgeons I have seen abroad.

[1] A *résumé* of a lecture delivered at the Jefferson Medical College, Sept. 27, 1895.

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I noticed especially, in the preparation of their patients for operation, that I never saw patients brought into the operating-room disinfected the day before as is our usual American custom. In clinical lectures and demonstrations upon patients, not only were the parts manipulated by the operator, but sometimes also by members of the class, and the disinfection was not done until after this demonstration had been made. Then, however, it was very careful, and especially in the thorough scrubbing with soap and water, followed by alcohol or ether, and then with a sublimate-solution. I was particularly impressed, however, with the fact that most of the surgeons I saw washed their hands for a longer period, I think, than many of our American surgeons. So much so that I made up my mind that whenever I had nothing else specially to do I should employ my time scrubbing my hands. On the other hand, Mr. Horsley told me that he had gone to the opposite extreme and usually prepared his patients for 48 hours, instead of 24, before operation. The field of operation was generally surrounded with towels, which frequently became more or less displaced, and are not as efficient in their protection as large sheets, as we more commonly use in this country.

On the continent the needless exposure of patients in many cases struck me rather unpleasantly. Both women and men were brought in almost, and, in many cases, entirely nude, when it seemed to me not a necessity. We are more careful of the ordinary proprieties of life, it seems to me, in this respect, with no diminution of surgical safety and a great gain to social decorum.

I can scarcely wonder at the frequent deaths from chloroform which one sees so constantly reported in the medical journals abroad. In six weeks I saw six patients within an ace of dying. The rule that my old teacher, Prof. S. D. Gross, always laid down, that chloroform was to be given with plenty of air, seemed to be almost ignored. The chloroform was poured in considerable quantities on a towel or napkin, which was pressed close down on the patient's face, so that he breathed almost absolutely pure vapor of chloroform. In each of the six instances I speak of the operator had to discontinue his operation, and the patients were restored with difficulty by artificial respiration and rhythmic traction of the tongue. Apparatus such as Clover's or Ormsby's, for the administration of any anesthetic, was rarely employed excepting in England.

On my arrival in London Sir William MacCormac very kindly invited me to be present at the examinations for the Royal College of Surgeons, and I was extremely interested in observing their methods, which struck me as decidedly superior to our own. The Court of Examiners consists of ten well-known surgeons, such as Marsh, Morris, Davies-Colley, Anderson, Owen, Howse, Page, McCarthy, Godlee, and Sir William MacCormac, the President. The examinations were held in the examination-hall of the Royal College of Surgeons on the Thames embankment, near the Savoy Hotel They were held at what seemed to me a rather curious hour, from 5 to 10 P.M., with an interval of half an hour for a very simple lunch or supper.

The examiners are divided into five committees of two each, and every one who desires to take his degree in surgery is obliged to pass the Court of Examiners. You will observe that the examiners I have named differ from our own in this respect that they are all active teachers, whereas the Pennsylvania statute forbids any teacher to be an examiner, on the ground, I suppose, of possible favoritism. This is avoided by the Court of Examiners by having no teacher examine students from his own school. Every candidate has to write a thesis on an assigned subject and the theses are divided equally among the five committees, and thus are read and passed upon by two examiners.

The practical character of the examination, however, especially pleased me. For instance, on one evening, in a large room, five healthy men were brought in nude, with the exception of little bathing-tights covering only the pelvis and genitals, and they were placed upon five tables with two examiners at each table. Five students were then admitted and each one assigned to one of the tables. He was then examined carefully as to his knowledge of the normal surgical anatomy of the body. For instance, he was told to "Mark on this man's thigh the course of the femoral artery with a dermatographic pencil," and then was asked, "What is the relation of the vein and nerve to the femoral artery? Point out the borders of Scarpa's triangle. Mark on the skin the line of the carotid artery; the triangles of the neck. If a wound were inflicted here in the middle of the arm, what structures would be divided if the cut went to the bone? Where does the posterior tibial artery run at the ankle-joint, and what is the relation of its neighboring structures? Mark the boundaries of the liver. Mark where the gall-bladder is situated. Indicate the point of bifurcation of the aorta," etc.

After this had been continued for some time, each man was directed to a tray containing a very complete set of surgical instruments, from which the examiner would select, for instance, a lithotrite, and ask him what the instrument was and direct him to show the method of using it. He was obliged to find a trocar and canula, a lithotomy-staff, a grooved director, etc., and to show how they were used. This examination covered perhaps fifteen or twenty of the more important surgical instruments.

Another clinical examination was made in which five patients instead of five healthy men were utilized, and each student in turn was required to examine the patient, obtain his history by questions, examine the tumor, etc., by palpation or other suitable means, and was required to make his diagnosis and give his reasons for the diagnosis, the differential diagnosis, and the treatment. At another stage of the examination, each committee of two had on a table 10 or 15 specimens, dried, or more commonly in jars, from the Hunterian Museum, and the candidate was asked what the specimen was, what was the disease, the symptoms, diagnosis, and especially the pathology of the disease and its treatment.

After the examination was concluded on the second evening that I was there, those who had passed were called in before the entire Court, who rose to receive them, and they were addressed in a few practical pertinent remarks by the President, and their certificates of membership in the College were handed them.

This is the only "Commencement" which is held, if such it can be called, for there is no audience, no music, no flowers, no formal oration, but the occasion is one of the simplest.

The Court of Examiners are elected by the Council

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of the Fellows for a period of five years. During the past year four examinations for membership besides two for the Fellowship were held. Of the 79 candidates for Fellowship, 45 were passed, 30 were postponed for reexamination at the end of 6 months and 4 for a year. For the membership 937 candidates were examined, of whom 579 were passed and 378 were postponed. The fees paid by all the candidates, amounting to a little over 1000, were somewhat over $50,000, and the fees paid to the Court of Examiners, as well as the examiners in midwifery, were nearly $30,000. Each of the Court of Examiners in Surgery receives about from $2000 to $2500 a year. The Court of Examiners in Medicine, who are elected by the Royal College of Physicians of London, examined 905 candidates, of whom 521 were passed and 384 were postponed. The Royal College of Physicians also elects, in conjunction with the Royal College of Surgeons, the examiners in midwifery, who passed upon 824 candidates, of whom 558 were passed and 268 were postponed.

You will observe, therefore, that not only are the examinations, in my judgment, more thorough and more complete than ours, but also they are much more severe; the percentage of men who failed being far greater than is usually the case in this country.

In London I had the pleasure of seeing quite a large number of operations by Messrs. Horsley, Howse, Davies-Colley, Barker, Jacobson, Fenwick, and others. I attended also a lecture by Mr. Horsley, in which he demonstrated the very important observations that he has made as to the cause of death in cases of cerebral hemorrhage, tumor, depressed fracture, and gunshot-wounds, as well as of violent concussion of the brain. He has shown unquestionably that such patients die from failure of the *respiration*, and not, as we have hitherto supposed, from failure of the *heart*. This had been already investigated by Duret, Bergmann, and others, but the conclusive proof has been given by Mr. Horsley. A dog was secured to a board after being chloroformed. The pulse was traced on a revolving drum by a pen by means of a canula inserted in an artery. The respirations were similarly marked by another pen. Seconds of time were marked by a third, and the instant when a ball was fired it was also marked upon the same drum by means of a fine wire passing across the muzzle of a pistol, the breaking of which by the ball recorded on the drum the instant of discharge. A ball was then fired through the brain of the dog. The instant that the ball penetrated, the respiration stopped and was very slowly reestablished, but gradually failed and ceased a second time as the blood poured out in the cranial cavity, producing compression.

The experiment was strikingly successful and the practical deduction drawn from it was equally important and should alter the treatment that we have heretofore employed. Usually, after any severe injury to the head, the patient has been stimulated by alcohol with a view to increasing the action of the heart, whereas, as Mr. Horsley has shown in the *Quarterly Medical Journal* for July, 1894, the proper practice would be artificial respiration until, by surgical means, the condition producing the compression has been remedied. As he has shown also in the paper I have mentioned, this means, namely, artificial respiration, has saved more than one patient who who would have died upon the table had it not been used.

The opponents of vivisection will find but little comfort in such practical results in the saving of human life from experimentation upon animals.

The first surgeon whom I saw in Germany was Prof. Krause in Altona, opposite Hamburg, and I found him an enthusiastic, earnest, and able surgeon. I was greatly interested in a number of cases that he showed me, such, for instance, as several of skin-grafting, in which he had grafted not the superficial layer of the skin only as in Thiersch's method, but the entire thickness of the skin. He is very careful, however, to remove all of the fatty tissue from the under surface of the graft. I saw several cases in which he had apparently permanently healed several ulcers of the leg by this method, which certainly deserves a trial at the hands of American surgeons. I saw him also operate upon an inguinal hernia, and he told me that in femoral hernia he had adopted Trendelenburg's method of chiselling off a piece of the pubes and turning it over on a hinge of periosteum, thus closing the femoral ring by bone.

Unfortunately Prof. Krause had no case at the time for removal of the Gasserian ganglion. You know, perhaps, that he and Hartley, of New York, independently and nearly at the same time devised the osteoplastic operation for the removal of the ganglion. He showed me, however, a number of photographs of the specimens which he had removed, which have been published in the *Münchener medicinische Wochenschrift* for this year. The specimens showed a more thorough removal than I had believed possible and more thorough, I think, than most other surgeons have accomplished. The specimens included the entire ganglion with the second and third divisions of the fifth nerve (the ganglion being torn off from the first division at its origin from the ganglion) and the root of the fifth nerve as far back, evidently, as the pons.

It will certainly be my aim hereafter, and I think it should be of surgeons in general, to effect as thorough removal as this. It is accomplished by dividing the second and third divisions of the fifth, seizing them with forceps and by traction tearing out the ganglion and its roots. Of five cases that Krause has operated on all have recovered, and not one of them suffered from any trouble with the eye, though one of them was threatened very seriously for a time with ulceration of the cornea.

Unfortunately Prof. Schede, one of the most brilliant operators in Europe, was incapacitated from operating by reason of an infected finger, but he kindly showed me over his splendid new hospital in Hamburg, one of the most complete that I have ever seen.

In Kiel I was most kindly received by Prof. von Esmarch and his already distinguished first assistant, Dr. Bier.

I was much struck with the systematic means of illustration which Prof. von Esmarch is constantly accumulating, and I do not wonder at the delightful illustrations in his books. A large case with many drawers was filled with water-colored drawings, literally by the hundred, of all sorts of pathologic and surgical cases and specimens.

The number of patients with tuberculous troubles in the hospital at Kiel was extremely large. I think I never saw so many tuberculous patients brought together. Dr. Bier is making a very thorough study of the effects of passive congestion, especially in tuberculosis of joints,

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by means of a rubber bandage encircling the limb with sufficient pressure to produce slight congestion.

A number of very interesting operations were performed in his clinic, but I have not time to describe them in detail. In fact, I can only mention to you a very few of the operations and patients that I saw in the course of my little trip.

I was much interested in the cases of goiter which I saw operated upon by Prof. Kocher in Berne, who last spring reported to the German Surgical Society an extremely interesting series of 1000 cases—more than any other surgeon has ever operated upon. He operated upon two and Prof. Roux, of Lausanne, operated upon four in one morning. Prof. Socin, of Basle, operated on another, and I saw also several other glands removed by other surgeons.

The incision that the Continental surgeons now commonly make passes from one side of the neck to the other in a very sharp and rather long curve, with the convexity downward toward the sternum. More frequently they operate without any anesthetic, or by a number of punctures in the skin they deaden the pain of the first incision by means of cocain. The pain did not seem to be at all beyond endurance.[1] These men of large experience are decidedly of the opinion that the dangers of the operation are much lessened by operating without anesthesia. There is much less turgescence of the veins than when an anesthetic is used, none of course from vomiting or cough, and the absence of both of these phenomena after the operation diminishes the danger of complications. Another advantage also is that when the inferior thyroid artery is being dissected and tied, by engaging the patient in a conversation for a few minutes, the possibility of including the recurrent laryngeal nerve in the ligature is avoided, as the altered voice would immediately warn the surgeon of the danger.

In extirpation of goiter the hemorrhage was much less than I have before seen, by reason of the extremely careful hemostasis by means both of very numerous hemostatic forceps and double ligation of the larger vessels before division between the ligatures. Almost invariably the upper part of the tumor was first attacked and the superior laryngeal tied; then the thyroidea ima and then the inferior thyroid vessels. The method of enucleation for cystic growths, which has been so popularized by Socin, is adopted in all cases of cystic tumor suitable for such operation, and is considered preferable to extirpation, as it avoids any possible injury to the recurrent laryngeal, and also avoids the possibility of cachexia strumipriva, by leaving all the gland which is not diseased.

In Heidelberg, Prof. Czerny and his first assistant, Dr. von Beck, were most kind and showed me everything in their power. I saw, among others, an interesting case of actinomycosis of the right iliac fossa, which presumably arose in the appendix, an admirably done suprapubic cystotomy, and a number of other important cases which I have not time to mention.

In Berlin I was greatly interested in the clinics of Prof. von Bergmann and Prof. Bardeleben. The latter has, unfortunately, since died. I was especially interested in seeing a number of patients with fractures of the leg treated by the ambulant method with plaster-of-Paris. In connection with this method I learned one point, as to which I had not been especially careful heretofore, namely, that the foot should be slightly flexed when the plaster is put on, so that the patient walks upon the heel and not on the sole of the foot, thus avoiding either breaking the cast or producing pressure at the ankle.

Unfortunately I have not time to tell you of the many interesting things shown me by Prof. Kraske in Freiburg, Madelung in Strassburg, Championnière, Terrier, Péan, Hartmann, and others in Paris, but with these few illustrations, which I hope may have been of interest, I must close.

[1] Since this lecture was delivered I have operated upon one case with cocain only, and the patient assured me that he suffered but little pain. I was greatly pleased with the method.

## CLINICAL MEMORANDA.

### A URETHRAL CALCULUS OF LARGE SIZE.

BY P. M. ASHBURN, M.D.,
OF BATAVIA, OHIO.

THE opportunity of observing and operating in the following case I owe to Dr. T. A. Mitchell, of Owensville, Ohio, who had had charge of the case for 2 days before the time of operation, though he was not allowed to operate sooner. I think the case worthy of record because of the very unusual size of the stone. All the works on surgery, five or six in number, to which I have access here, speak of urethral calculi sometimes reaching a large size, but none of them says how large that size may be, or speaks of stones much larger than beans. Whatever may constitute large stones in the urethra, I cannot believe that many, if any, other people would allow a urethral stone to reach the great size of this one. For 30 years the patient had carried the stone in his urethra, and for 30 years had had dribbling of urine. In consequence of this he avoided the society of his fellows to such a degree as to be considered "queer." Still in all that time he never consulted a physician about the trouble, nor in any way sought relief.

He was a large man and by nature a strong one, but the 30 years of pain and worry had worn upon him a good deal, and he looked older than his years, and somewhat cachectic. His name was J. U., 43 years of age, by occupation a stonemason and farmer. His history is as follows:

His father is 75 years old and rheumatic; the mother is 65 years old and feeble. The patient has 6 living brothers, 1 of whom has vesical trouble, and 4 living and healthy sisters. The patient has had no sickness except that under discussion, and no injury except a scald as a small boy. He has been married for 5 years, and has a son 2 years old. When 15 years of age he was one day, while urinating, seized with violent pain in the perineum, and noticed a lump there. As he remembers it, the lump was the size of a cherry. The stream of urine at once stopped, and the patient was in such pain that he had to be carried home. Catheterization was at once performed, and without trouble, but it had to be continued for a month, the boy staying in bed for 2 weeks of the time. After that he always had pain and difficulty in passing urine, and almost constant dribbling of urine. For a voluntary passage he had to

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grasp the penis far back and press inward at the sides and downward from above or upward from below.

Three years ago and again 2 months before the last trouble, he had acute attacks of pain in the perineum, with increased difficulty in urination. The attacks subsided, however, without treatment, and the patient kept about his work.

On September 3d, 1895, he again began to have pain in the urethra, with increased difficulty in urination. He continued to work, however, until September 9th, when he consulted Dr. Mitchell, who found a large lump in the perineum, which the use of a sound readily showed to be a large stone. Dr. Mitchell also recognized beginning infiltration of urine in the scrotum. He advised an operation, but the patient ridiculed the idea. The next day, however, he sent for the doctor, who then found the scrotum greatly infiltrated and intensely red and tender. The infiltration and swelling were greatest on the left side of the scrotum and extended along the left spermatic cord in such a way as to excite a suspicion of hernia.

Operation was again advised, and this time consented to, as the patient believed his life to be in immediate danger. The following morning Dr. A. W. Ashburn and myself saw the man in consultation with Dr. Mitchell. He then lay in bed, suffering great pain in the hypogastrium, inguinal regions, and scrotum, trying frequently to pass urine, and being unable to do so. After great effort, however, he did manage to pass a small amount. It was turbid and ammoniacal. The scrotum was much swollen, evidently infiltrated with urine, dusky-red and very tender. Palpation back of the scrotum revealed an indurated mass the size of a goose-egg, which was extremely tender to the touch. A sound introduced into the urethra could only be passed as far as the posterior penile portion, where it gave the clear, loud click of contact with a stone.

The genitals and perineum were at once shaved and cleansed, the patient placed under ether, and put on the table in the lithotomy-position. The stone could then be roughly outlined. The incision, 2 inches long, was then made in the median line of the perineum. Immediately there came a gush of very fetid pus of about an ounce. After its evacuation the incision was deepened and carried immediately to the stone, which was then grasped and easily removed. Back of it lay another and smaller stone, and one or two small fragments.

The large stone lay in the membranous urethra, encroaching on both the bulbous and prostatic portions. The urethra was much thickened and greatly dilated, as can be seen from the description of the stone. After its removal I could easily pass my little finger into the bladder. A free incision was made over the left side of the scrotum and about an ounce of straw-colored fluid ran out of it. Two stitches were then taken in the anterior end of the perineal wound, a catheter passed into the bladder, drainage-tubes into the wounds, and the whole dressed with iodoform gauze, the catheter being brought out through the dressing.

The following day the catheter became occluded and was withdrawn and found to be covered and partly filled with a phosphatic deposit. The second day after operation the wounds were dressed, and looked well. The scrotum, however, was still much swollen. Since that time improvement has taken place steadily, though somewhat retarded by an attack of malarial fever. That, however, yielded to quinin, and the patient is now in good condition, the wound granulating, and the urine, under the use of boric acid, is no longer ammoniacal, but acid and sweet.

The stone, of which an illustration is herewith given, is, I think, about as large as has ever been removed from the urethra. It is 2⅛ in. long and 1¼ in. in diameter. It is white on the outside, very hard, and is shaped and looks much like a potato. It weighs dry 660 grains. At one end of it is a polished surface that corresponds with a similar surface on the smaller stone, which lay against it. This stone is of the same appearance, shaped much like a Lima bean, and weighs dry 60 grains.

## INTUBATION OF THE LARYNX IN A CHILD FOURTEEN MONTHS OF AGE, WITH REINTRODUCTION OF THE TUBE, AND RECOVERY.

BY MELVIN M. FRANKLIN, B.S., M.D.,
OF PHILADELPHIA.

IN looking over records accessible to me, I find that cases of intubation in children under eighteen months of age, with recovery, are exceedingly few, and that the mortality increases greatly as the age diminishes. It is for this reason that I report the following case.

On September 12th, while attending another member of the family affected with diphtheria, my attention was attracted to Stephen B., fourteen months old. I found the pulse-rate accelerated and a slight elevation of temperature, with no other symptoms, except congestion of the tonsils and fauces.

Early the following morning I was summoned in haste to the case, and found the little patient in a precarious condition, with a temperature of 103.8°, a pulse-rate of 160, and all the symptoms of intense dyspnea, with every few minutes a paroxysm of croupy cough, ending in the expectoration of quantities of stringy white membrane. The throat on examination was found to be covered with membrane that could be easily detached, leaving a rough bleeding surface. The mother stated that during the early morning the child's breathing had become more and more labored and the croupiness had greatly increased.

Hastily procuring the necessary assistance and instruments, I introduced a No. 1 tube of O'Dwyer's pattern, and after the operation the symptoms were in a great measure relieved. Two minims of tincture of ferric chlorid, in a mixture, were ordered to be given every hour, the throat sprayed with a 1½ per cent. solution of

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papayotin (Merck), and a second mixture to be given every third hour, containing tincture of digitalis and tincture of nux vomica, of each two minims, combined with $\frac{1}{64}$ grain of mercuric chlorid.

As the membrane was still visible on September 18th the tube was not disturbed until the following day, when, on the evening of the 19th (six-and-a-half days after introduction), I removed it, leaving instructions to have the throat sprayed at short intervals. Returning in two hours, the condition of the child was such that a reintroduction of the tube was necessary, and this was followed by immediate relief.

For the second time the tube was allowed to remain for a period of six days, and again, as the temperature was only slightly elevated and no membrane visible, I removed it. After this the breathing was not as free as could be desired, but I allowed the tube to remain out, with instructions to send for me should the child's condition require it, and this proved to be the case a few hours afterward. The tube was with difficulty introduced for the third time, owing to the swollen condition of the parts, but with no less gratifying results. The patient four-and-a-half days later began to refuse nourishment, and the tube was removed for the last time.

The general condition now steadily improved, with the exception of a paralysis of the pharyngeal muscles, permitting liquids to regurgitate through the nose. There also existed a slight nephritis, evinced by albuminous urine, but under hygienic and tonic treatment these complications rapidly disappeared and the child entirely recovered.

1518 NORTH BROAD STREET.

## MEDICAL PROGRESS.

***Sudden Death Due to Cardiac Syphiloma.***—At a recent meeting of the Clinical Society of London, DUCKWORTH (*British Medical Journal*, No. 1816, p. 974) reported the case of a strongly built man, 35 years old, who, while walking in the street carrying his little boy, suddenly fell down and expired. Only a meager antecedent history was obtained, but there was evidence of old syphilitic disease on the tongue and on the glans penis. A small gumma was found in the left lung. The heart weighed 22 ounces, and was bound by firm adhesions to the pericardium, both at the apex and the base. The ventricles were hypertrophied and dilated; the valves were normal. In the wall of the left ventricle above the apex was a round depression nearly an inch in diameter and covered by long adhesions. This was due to a thinning of the wall, with much endocardial thickening. A large aneurysmal pouch was found behind the posterior cusp of the mitral valve. This appeared from without as a tumor growing from the base of the heart, and completely covering the left auricle. Its walls were half an inch thick, and the pericardium was closely adherent over it. On section the muscle was replaced by tough, fibrous tissue, with foci of gelatinous matter. The endocardium was greatly thickened and fibrous. Microscopic examination proved the formation to be gummatous in nature, with patches of caseation. The smaller vessels showed signs of endarteritis. These appearances were taken to indicate a recent gummatous growth at the base of the left ventricle, and a similar but older one near the apex of that cavity. Investigation showed that in 14 similar cases death occurred quite suddenly in eight. But one case of the whole number was in a woman. The mean age of all the patients was 32 years. Many of the cases appeared to have been previously devoid of urgent symptoms. In some there had been pericardial pain. The valves were usually not involved, and hence murmurs were not to be heard. The ventricles and their septum were the common sites of the growth. The tendency to fatal and sudden syncope was probably attributable in part to endarteritis affecting the coronary vessels and possibly to the formation of embolisms in the branches of the coronary arteries, as a result of the dislodgment of fragments from the interior of aneurysms.

***Resection of the Apex of the Lung.***—At the recent French Congress of Surgery, TUFFIER (*Abeille Médicale*, October 28, 1895, p. 342) presented a man, 29 years old, in whom four years previously he had performed pneumonectomy. At that time the patient presented the signs of tuberculosis localized to the apex of the right lung. An incision was made in the second intercostal space and an extrapleural pneumothorax established by detaching the parietal layer of the pleura over a considerable extent. The apex of the lung at once presented and the diseased area, as large as a nut, together with healthy lung-structure for a distance of 2 cm. in every direction, was excised. The wound was closed without drainage and the patient was up and about on the ninth day. Tubercle-bacilli had been found in the sputum and were also found in the excised tissue. The patient had followed various pursuits in the four years following the operation, but had suffered from no pulmonary disturbance, and physical examination failed to disclose any evidence of return of the disease. It was not contended that similar operative intervention is generally applicable, but it was maintained that exceptionally it is indicated absolutely.

***The Relation between Uric-acid Excretion and Leukocytosis.***—As the result of experimental and clinical observations, KÜHNAU (*Zeitschr. für klin. medicin*, B. xxviii, H. 5, 6, p. 534) has found that a group of diseases attended with leukocytosis are characterized also by increased excretion of uric acid. This increase is not to be attributed to the febrile process alone, as it may attend afebrile diseases (cachectic leukocytosis). Rapid subsidence of leukocytosis corresponds with increased elimination of urates. Experimental leukocytosis is attended with increased elimination of urates, which reaches its maximum with the disappearance of the leukocytosis. Increased excretion of uric acid may be induced without the intermediation of leukocytosis by the administration of substances rich in colorless blood-cells (aseptic pus, thymus-infusion). Injections of nuclein induce directly increased elimination of urates, for which the leukocytosis developed at the same time cannot be held responsible. Colorless blood-cells constitute, if not the exclusive, the most important source of uric acid.

***The Diagnostic Value of Fluid Discharges from the Ear in Head-injuries.***—From a variety of considerations, MILES (*Edinburgh Medical Journal*, No. 485, p. 442) arrives at

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the conclusion that, while in the majority of cases in which bleeding and welling-up of cerebro-spinal fluid from the ear are present, a fracture of the middle fossa of the skull exists, these signs are not pathognomonic. The fracture is in many cases, perhaps in most, simply a coincidence. The great bulk of the hemorrhage comes from the vessels of the arachno-pial membrane and of the temporo-sphenoidal lobe of the brain and not from the fractured bone. The path of the discharges is along the sheath of the auditory nerve, through the lamina cribrosa to the vestibule, thence through the middle ear and the ruptured membrane to the external meatus. Excluding the extra risk of sepsis, the prognosis is on the whole better when these signs exist than when they do not.

## THERAPEUTIC NOTES.

***Anesthesia-Statistics.***—GURLT (*Archiv für klinische Chirurgie*, B. li, H. 1, p. 91) tabulates as follows the results of a collective investigation among the members of the German Surgical Society of Berlin into the frequency and fatality of anesthesia induced by various agents and combinations:

*Anesthesia with chloroform.*

| | Cases. | Deaths. |
|---|---|---|
| 1890–91 | 22,656 | 6 = 1 : 3776 |
| 1891–92 | 72,593 | 31 = 1 : 2341 |
| 1892–93 | 38,495 | 9 = 1 : 4278 |
| 1893–94 | 33,068 | 17 = 1 : 1946 |
| 1894–95 | 34,412 | 25 = 1 : 1376 |
| | 201,224 | 88 = 1 : 2286 |

*Anesthesia with ether.*

| | Cases. | Deaths. |
|---|---|---|
| 1890–91 | 470 | ... |
| 1891–92 | 7,968 | ... |
| 1892–93 | 6,213 | ... |
| 1893–94 | 11,669 | 2 = 1 : 5834 |
| 1894–95 | 15,821 | 5 = 1 : 3164 |
| | 42,141 | 7 = 1 : 6020 |

*Anesthesia with chloroform and ether in combination.*

| | Cases. | Deaths. |
|---|---|---|
| 1890–91 | 1,055 | ... |
| 1891–92 | 1,854 | 1 = 1 : 1854 |
| 1892–93 | 1,209 | ... |
| 1893–94 | 3,896 | ... |
| 1894–95 | 2,148 | ... |
| | 10,162 | 1 = 1 : 10,162 |

*Anesthesia with chloroform, ether, and alcohol in combination.*

| | Cases. | Deaths. |
|---|---|---|
| 1890–91 | 417 | ... |
| 1891–92 | 2044 | ... |
| 1892–93 | 979 | ... |
| 1893–94 | 750 | 1 = 1 : 750 |
| 1894–95 | 1554 | ... |
| | 5744 | 1 = 1 : 5744 |

*Anesthesia with ethyl bromid.*

| | Cases. | Deaths. |
|---|---|---|
| 1890–91 | 27 | .. |
| 1891–92 | 2433 | 1 = 1 : 2433 |
| 1892–93 | 2095 | ... |
| 1893–94 | 2986 | 1 = 1 : 2986 |
| 1894–95 | 1426 | ... |
| | 8967 | 2 = 1 : 4483 |

*Anesthesia with pental.*

| | Cases. | Deaths. |
|---|---|---|
| 1891–92 | 219 | 1 = 1 : 219 |
| 1892–93 | 378 | 2 = 1 : 189 |
| 1894–95 | 34 | ... |
| | 631 | 3 = 1 : 210 |

***Pseudoleukemia Successfully Treated with Arsenic Subcutaneously.***—KATZENSTEIN (*Deutsches Archiv für klinische Medicin*, B. 56, H. 1, 2, p. 121) has reported the case of a man, 37 years old, presenting characteristic symptoms of pseudoleukemia in whom a cure was effected by the subcutaneous injection of progressively increasing doses of solution of potassium arsenite. For two months the patient had observed glandular swellings throughout the whole body, and for several weeks a sense of oppressive pain beneath the left costal arch. He suffered also from insomnia, anorexia, and debility; and his appearance was anemic, cachectic, and emaciated. Inguinal, axillary, cervical and other lymphatic glands were enlarged, as was also the spleen. The erythrocytes numbered 4,720,000 to the c.mm., the leukocytes 12,200. The former were free from poikilocytosis and nuclei. Some of the multinuclear leukocytes were eosinophilous. The patient complained beside of intense prurigo. Epistaxis recurred from time to time and the lower extremities were edematous. In the course of six months in the neighborhood of one-hundred injections of solution of potassium arsenite were made in the back on either side of the vertebral column, with the result of effecting disappearance of both objective and subjective symptoms. At first 0.1 c.cm. (♏ss) properly diluted was injected and the dose was gradually increased every third day 0.05 c.cm. (♏¾) until 1 c.cm. (♏xv) was injected daily, a free interval being permitted every two weeks. Finally 0.6 c.cm. (♏ix) gradually increased to 1 c.cm. (♏xv) was injected twice daily. Then the doses were gradually reduced until the treatment was discontinued and the patient was dismissed as cured. At the time of report there had been no return of the symptoms for a year. The patient had a previous history of syphilis.

***In the Treatment of Herpes Zoster*** ROBIN (*Bull. Gén. de Thérap.*, October 30, 1895, p. 359) recommends the application on cotton of a powder constituted as follows:

| | |
|---|---|
| Starch | ℥iv. |
| Zinc oxid | ℥j–℈iv. |
| Camphor | gr. iv–gr. xii. |
| Opium | gr. iv.—M. |

For the accompanying neuralgic pain a pill of the following composition may be administered three or four times a day:

| | |
|---|---|
| Extract of stramonium, Extract of hyoscyamus | of each gr. ½. |
| Extract of belladonna | gr. ⅓.—M. |

***For Acute Coryza.***—

℞.—Chloralis . . . . . gr. x.
Olei ricini . . . . . f℥iv.—M.
S.—Apply to the cleansed nasal mucous membrane.

*Practitioner*, vol. lv, No. 5.

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SATURDAY, NOVEMBER 23, 1895.


## POLITICS AND THE INSANE.

UNDER this title Dr. Henry Smith Williams has contributed a popular article to the *North American Review*, in which he makes an indiscriminate attack upon the management of the insane by the "politicians." The tenor of Dr. Williams' article is in accord with that of a species of writing, now rather common, in which there is a tendency to decry anything that is suggestive of "politics." In a country so devoted to politics as our own—one, in fact, whose institutions are essentially founded on popular government, this outcry against everything political has seemed to us illogical and unwise. It is not only dangerous to the country at large, but it sooner or later leads those who indulge in it into reckless misstatements of facts and into a pharisaical condition of mind which unfits them for forming impartial judgments. Dr. Williams' article suggests these thoughts, both by its tone and by its matter.

We are not concerned here, however, with anything that Dr. Williams has written, except his unjust onslaught upon the present management of the Philadelphia Hospital. He has evidently taken no pains to make a personal inspection of the institution or to verify his alleged facts, but has relied largely upon a letter from an unnamed writer, whose statements, to say the least, are highly colored.

These statements are to the effect that the insane in the Philadelphia Hospital are consigned to "wretched, crowded, dark buildings that have been odious and odorous for half a century, with no facilities for out-of-door exercise or occupation;" that "within the buildings the allowance of fresh air equals but a few square feet per patient;" that "all in all, the condition of the insane here is one of the saddest spectacles to be seen in this country;" and that "the politicians have obstinately resisted every effort for improvement." Dr. Williams concludes, from this lurid picture, that the reason the politicians resist efforts at improvement is that the existing system gives them better facilities for patronage than could be hoped for under an improved system. In other words, their motive is to retain the spoils of office.

The exact facts about the present management and condition of the Insane Department of the Philadelphia Hospital are far other than those described in these exaggerated and misleading statements. After the disastrous fire of a few years since the old building for the insane was largely rebuilt and entirely renovated. New wings and additions, including a model kitchen, have since been erected, and the whole atmosphere and appearance of the institution have been changed. So far from this large and commodious group of buildings being "odious and odorous for half a century," it can be said that they are remarkably free from bad odors, and most of them from the burden of all these years. Every one of them has been remodelled, replastered and repainted during the past five years. The new additions, costing $229,000 (more than a quarter of a million dollars), were erected three years ago, and have been pronounced, by competent judges, satisfactory in every way. As to air-space, the ceilings are from 20 to 35 feet high and are not exceeded in any hospital in the State. No ward is overcrowded, and each is well ventilated and heated. All of these facts can be amply verified by personal inspection. This hospital has what no other State hospital has in equal degree, sitting-rooms for day distinct from sleeping-rooms for night. It has a splendid dining-hall, 220 x 100 feet, comfortably seating 1000 persons. It has larger airing-courts than any State hospital, although, of course, it is without much land for farming or trucking. Over 50 per cent. of the patients are usefully employed.

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This hospital takes from the dregs of a great city, and its population in consequence is physically much below that of the State hospitals; yet its patients make almost all of their own clothing, for both men and women, and in addition there are shops for making brushes and shoes. Finally amusements are given regularly in a large assembly-room.

The condition of the insane is always a sad spectacle, but it is no sadder at the Philadelphia Hospital to the eye of a true alienist and lover of justice than it is in any gilded asylum in the land.

The "politicians" of Philadelphia, against whom Dr. Williams inveighs, are the members of the present board of Charities and Correction. They are appointed by the Mayor, and represent both political parties. No word of suspicion has ever been whispered against any one of them in either his private or public capacity. They have been taken from the legal and medical professions, and from active business-life in this city, where they are all thoroughly personally known; and few, if any, of them, have been prominently identified with politics. We do not see how a public board could be chosen of more representative and responsible men.

Finally the present superintendent of the Philadelphia Hospital was chosen after a competitive examination under the civil service rules, with the highest average among seven applicants. He has always, according to the medical chief, Dr. Hughes, joined the latter in every move for the improvement of the insane. All appointments and discharges in the insane-department are controlled by the medical chief, and politics is no factor in their cases.

We do not hesitate to say that the Insane Department of the Philadelphia Hospital under its present management compares favorably in cleanliness, hygienic conditions, and general welfare of its patients with any State hospital, and that the authorities, who have had much to contend with, including popular prejudice, are deserving of great credit for what they have accomplished. The truth is, this hospital suffers from a bad reputation which it acquired years ago, before the improved management under the new city constitution made it what it is to-day. Dr. Williams, and others who like him do not take the pains to verify their "facts," simply repeat old calumnies which no longer have a basis.

The Philadelphia Hospital is a great public charity, which for years has been one of the most important centers for teaching and for medical science in this country. Those who criticise it should at least make themselves familiar with the facts.

We should like to ask Dr. Williams what is his remedy for the political control of public hospitals for the insane? Is there any guarantee that boards appointed by the State authorities will be more intelligent and public-spirited than the present Board of Charities and Correction, appointed by the Mayor, and composed of men living here right in our midst? Is not such a board, in fact, more directly under public surveillance than a State board?

The truth is that the faults in our asylums are not so much in the political machinery as in the abuse of it. No dispassionate observer will deny that these abuses have been great in some, even many, instances. But they can be, and even have been, just as great under State as under municipal control. Because these abuses abound in New York and Chicago it does not follow that they occur in Philadelphia, and no upright judge will claim that they do occur at present in the Philadelphia Hospital.

We suggest that the zeal of political reformers should not lead them to misstate facts, and that even the common sense of a mugwump should teach him that public institutions must be under political control.

## SERUM-THERAPY AND DIPHTHERIA-ANTITOXIN.

WHILE a great deal has been said of late about the effect of injections of diphtheria-antitoxin, comparatively little study and attention have been bestowed upon the effect of the serum itself when injected into a human being. It is rather strange that so many physicians should have taken it for granted that the serum is inert. If this assumption proves to be without foundation, then we have another and important disturbing factor introduced into the already complex problem of determining the real practical value of the diphtheria-antitoxin treatment.

At a recent meeting of the New York Academy of Medicine an attempt was made to clear up this part of the subject. Dr. Henry Dwight Chapin detailed a series of experiments that he had made on animals with a view of determining the effect, if any, of injections of serum obtained from healthy horses. These experiments prove in a general way that the injection of the horse-serum produces a

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moderate reduction in the number of red blood-globules, and causes congestion of the spleen, congestion and cloudy swelling of the kidneys, and sometimes areas of fatty degeneration. Most of the experiments were performed upon rabbits. These results indicate that it is no longer wise to look upon the serum as an inert and harmless substance, and suggest that greater caution should be observed in adopting this treatment. Several observers have noted that the transfusion of the blood of the lower animals into the human subject is followed by a temporary rise of temperature and an acceleration and weakening of the heart's action, and that in addition to a marked destruction of the red blood-cells there have been pathologic changes observed in the kidneys and hemopoietic system. An erythema, similar to that so commonly seen after the administration of the diphtheria-antitoxin, has been known to follow the injection of the plain serum from a healthy horse.

All this would seem to show very clearly that the serum itself is a powerful agent; yet there are not lacking experimental observations opposed to this view. For example, Dr. William H. Park, at the meeting already referred to, said that recently three rabbits had been subjected to experiment. One of them had received injections of plain serum, the second one injections of antitoxin, and the third one had received no treatment, and had been simply kept as a control. The kidneys from these animals had been then sent for examintion to a pathologist of high repute, who, without any knowledge of the particular animals from which the kidneys had been taken, reported that the least changes were found in the kidneys from the rabbit that had received the antitoxin, and the greatest changes in the kidneys of the control-animal. About the same changes were produced by the serum and by the antitoxin in these rabbits.

So much for the part played by the serum alone. To determine the effect of the antitoxin on the kidneys, Dr. William Vissman injected it into a number of healthy rabbits, using an equal number of control-animals. The kidneys from the animals killed 24 hours after the injections were very firm and of a dark-red color. On the cut surface the cortical substance was very much injected, slightly opaque, and a little more prominent than the medullary substance, which was pale. On microscopic examination of fresh sections in 0.6 per cent. salt-solution, the Malpighian bodies and capillaries of the cortex were found to be distended with blood. The epithelial cells of the tubules were filled with refractive granules, obscuring the nuclei, which were only brought into view by the addition of dilute acetic acid. There were no casts found in the tubules. These conditions were present in all of the animals, and, as the time after the administration of the antitoxin increased, the injection of the blood-vessels decreased, and the cloudy swelling became more prominent. Those animals that had received more than one dose of the antitoxin exhibited slight hemorrhages into the tubules.

From these facts Dr. Vissman argues that since the doses administered to the rabbits were about equal to, or a trifle less proportionately than, the doses administered to children in cases of diphtheria, it is reasonable to suppose that approximately the same changes are produced in children when the antitoxin is administered. He also calls attention to a fact, observed and commented upon by Behring, Roux, Biggs, and others, to the effect that the antitoxin has a certain antidotal action when administered with, or very shortly before, the toxin, but that after the toxin has once begun to influence the organism the antitoxin has but little power to neutralize its ill effects. The conclusion that Vissman draws is that as little benefit is to be expected from the antitoxin after the diphtheria has made such progress that it can be diagnosticated, and that since the experiments just quoted indicate that the antitoxin exerts a deleterious influence, and even reduces the power of the organism to resist the inroads of the disease, it is highly probable that, instead of reducing the mortality of diphtheria, the antitoxin has really increased the death-rate.

In a paper on "The Physiological Action of Serum-injections," Dr. William Henry Porter states that as the serum produces a rapid destruction of the blood-cells, and these cannot pass through the body without change or oxidation, it is probable that the chemic properties of the living cells are largely overtaxed. He objects particularly to serum-therapy because all serums and toxins are absolutely unknown quantities. In his opinion, if the statistics of this subject were properly studied, it would be found that the mortality from diphtheria has been raised rather than lowered by the antitoxin-treatment.

But positive and candid as are the foregoing statements, they only seem to excite renewed discussion and controversy. Dr. William H. Park

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says that if moderate quantities of serum be injected into animals there will be a moderate reduction in the number of the red blood-cells, but that there will be no broken-down cells, and that after a week or two the original number of red blood-cells will be restored. There is no change in the number of the leukocytes produced by plain serum, but the injection of serum and the antitoxin causes a temporary reduction in the number of the leukocytes. The same changes in the red blood-cells have been noticed in the 800 or more children in New York City who have been treated with the immunizing serum. These children had a slight rise of temperature and a transitory and moderate albuminuria. They have been carefully watched, and in not a single instance has there been any permanent ill effect from the treatment. In drawing deductions from experiments on animals, it should be remembered that the kidneys of rabbits often show granular and fatty changes independently of any experimentation; indeed, Dr. James Ewing says that in an extensive experience in experimentation on rabbits he has found it very difficult to secure rabbits with normal livers, spleens, and kidneys. This observer, having noticed a marked reduction in the number of leukocytes in 55 cases treated with the diphtheria-antitoxin, endeavored to determine whether this was due to the blood-serum or to the antitoxin. He found that when rabbits were injected with normal sheep's serum there was no appreciable decrease in the number of the leukocytes, but that the injection of the antitoxic serum was followed by a decided diminution in their number.

Finally, we may refer to the researches of Dr. J. S. Billings, Jr., at the laboratory of the New York Board of Health. Out of 33 cases of diphtheria treated with the antitoxic serum, a reduction in the number of red blood-cells was noticed in only nine cases, and in but three of these was this diminution at all marked. In a few cases of diphtheria received at the hospital in the latter stages of the disease, the number of the red blood-cells actually increased under the antitoxin-treatment. Five control-cases were treated outside of the hospital without the antitoxin, and in these a decided decrease in the number of the red blood-cells was observed.

We have cited the foregoing array of evidence in order that due weighing may be given it. There can be no doubt, however, that the trend of scientific opinion among those best fitted to judge is that the treatment of diphtheria with the antitoxin has tremendously lessened the average rate of mortality. Despite all adverse facts and criticism, that seems beyond dispute. We may have to modify the details of treatment, and we may at last indeed find that it is "not a specific" or "cure-all," but the fundamental principle is not likely to be overthrown.

## EDITORIAL COMMENTS.

***More about Antivenene.***—This is an age of "Anti's," from Behring's latest discovery back to the respectable "cullud lady" who held "Mas'r Gawge Washington" in her arms, as a tiny girl. The newspaper-"doctors" have taken it up these several years past and we have "Anti-fat," "Anti-korns," and a legion of others. The impulse has now spread into the social and moral realms with deplorable results, and we read of "anti-vaccination" and "anti-vivisection" movements with—unintentionally—comic (or more correctly ridiculous) journals as their champions and mouthpieces.

Antivenene, was described some months ago in the editorial columns of THE NEWS, in connection with Prof. Fraser's discoveries, but a further series of experiments has been continued by Dr. Calmette, pathologist to the French Military Hospital at Saigon, Cochinchina, with some very interesting results which have just been published. The doctor has reached, independently, almost the same conclusions as Prof. Fraser and has further investigated the question of the nature of the immunity produced. He has found that the serum of certain animals naturally possesses a distinct immunizing power against the snake-venom and in occasional individuals of these species this rises to a positive antitoxic power. That this immunity could be readily acquired by certain animals has been known for some time. One such instance is known to us: A bull-terrier in Western Nebraska that was addicted to the pastime of killing rattlesnakes displayed severe toxic symptoms the first time he was bitten, a less violent result the second and third times, and finally no apparent effect from his encounters. From Australia has just been reported a similar series of reactions on the part of a dog, to the poison-spur of the Duck-mole (*Ornithorhynchus*). The immunity, however, popularly supposed to be possessed by the mongoose and the hog was found by Dr. Calmette to be due mainly to the quickness and agility of the former and the thick hide and knife-like hoofs of the latter, although both their serums were highly antagonistic to the action of the venom. In the light of these results it would almost seem as if the widespread popular custom of using "snake-bite" remedies containing the gall-bladder, the flesh, or even the dried venom of the snake had had possibly some crude sort of a rational basis, however slender.

Extending his experiments, Calmette ound that subjects immunized against hydrophobia, tetanus, and abrin (calabar-bean) displayed a high degree of immunity to the venom, and in some cases their serum developed marked antitoxic properties in the same direction. More than this, rabbits that had been inoculated against abrin acquired a high degree of resistance, amounting,

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in some cases, to immunity against, not only venom, but also diphtheria, ricin, and even anthrax as well. Another series of experiments showed that in certain cases *the normal serum* of *man* is distinctly antitoxic against diphtheria, as was already known in the case of the horse.

These results form an intensely interesting and suggestive group, and taken altogether would seem to justify the belief that immunity mainly consists in the raising to a high pitch of the *general* resisting-power of the normal serum. If this be the case, may we not hope either that some antitoxin will ultimately be found that will have a protective effect against a whole class of diseases, or that we may discover how to develop this normal immunity, which many of us unquestionably possess already (else the race were long ago extinct), by hygienic means?

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***"Uranalysis" and "Symphyseotomy" Again.***—When a badly formed word has once gained vogue, is once actually in current use, there is little use in trying to kill it. There are thousands of such words already in the language that are either laughable or disgusting, or both, according to the standpoint taken. But there they are, and all tilts against them are quixotic. Habit is fate. *Quieta non movere* is a maxim that holds in philosophy as in politics.

But when in cold blood it comes to adding new atrocities, and backing them up with lexicographic or other erudite authority, then, indeed, objection may be interposed. A distinguished physician for whose scientific attainments—other than philologic—we have the most genuine respect, proposed the term *uranalysis* instead of the elder barbarism *urinalysis*. In criticising this "neoplasm" (which as Dr. Parvin would say is an anagram for "pleonasm") we found a most distinguished lexicographic authority arrayed against us, and in favor of *uranalysis*. It seemed to us that the etymologic savagery of *uranalysis* should be glaring without either erudition or pointing out. Not so, however. It came to be a question of authority. In writing to Dr. W. W. Skeat, of Cambridge, England, the undisputed master of English etymology, the author of the great etymologic dictionary, we incidentally mentioned the coinage of the word *uranalysis* and asked him what he thought of it. His characteristic reply was: "I need not say that *uranalysis* means 'analysis ot ure;' whatever 'ure' means I do not know."

In the same letter we also asked Mr. Skeat concerning the long-disputed correctness of the spelling of *symphysiotomy*. We have always contended that new words are formed from the *stems* or *roots* of words in older languages. The advocates of *symphyseotomy* based their preference upon the supposition that the word was formed from the Greek genitive, according to the meaning, "the cutting *of* the symphysis." This rule is a manifest error, and besides would require changes in thousands of English words. The φύσις in symphysiotomy, *e. g.*, is the same φύσις whence are derived our words *physiology*, *physiognomy*, *etc.*, *etc.* *Physiology* is the science (λόγος) of the body (φύσις), and if made up from the genitive should be spelled *physeology;* the same holds of *physiognomy*, etc. In reference to this point we also quote Skeat's conclusive words from his private letter: "It is not the case that Greek compounds are formed from genitives. They are formed from stems. Every Greek scholar knows all about it; it is not a question ot 'opinion' at all, but of simple *facts*."

And yet, however much we may hope, we still doubt if we have seen the last of these morbid new-growths.

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***Sterilization in Excelsis.***—It has long been a standing joke among bacteriologists that the day would come when the strictest surgical asepsis would be carried out at our dining-tables as well as in our operating-rooms; according to *Truth* (London) the day has already arrived. Pasteur, we are assured, was such a consistent germ-worshipper (or iconoclast?) in every realm, that for the latter years of his life he insisted upon a rigorous process of sterilization of everything that came upon his table. His napkin was taken directly out of a hot-air chamber and brought to him "white-hot." All his bread was either rebaked or toasted for each meal and brought to the table before it had time to cool in a sterilized napkin. His knives, forks, spoons, and plates were freshly scalded just before using, and his dessert-fruit washed in water that had been boiled and then hermetically corked for use. "An antiseptic liqueur ended the repast." We have all used such liqueurs just in that way and enjoyed them without any idea that we were taking a scientific precaution, but now we have a reason for the faith that is in us. We have grave doubts, however, whether the other precautions will ever come into very general use. In this connection the story is related of the distinguished savant that on one occasion, after carefully rinsing in a glass some grapes he was about to partake of, he abstractedly swallowed down the wash-water, dregs and all.

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## CORRESPONDENCE.

### CEPHALHEMATOMA.

*To the Editor of* THE MEDICAL NEWS,

SIR: I have read with interest the report of a case of "Cephalhematoma with Cerebral Hemorrhage," by Dr. T. W. Keown, in the October 26th issue of the NEWS.

The writer refers to the text-books as regarding "cephalhematoma in infants as due to prolonged labor and mechanical injuries resulting therefrom," describing this form of hemorrhage as "*a particular form of caput succedaneum.*" In all of the text-books I have been able to consult, I have failed to find caput succedaneum and cephalhematoma described as the same condition, or one "a particular form" of the other.

Dunglison says of the former, "A term used for the tumefied *scalp* which first presents in certain cases of labor;" and of cephalhematoma, "a sanguineous tumor sometimes developed between the pericranium and bones of the head of newborn children."

Ashby says a "cephalhematoma is distinct from a caput succedaneum, inasmuch as the latter does not fluctuate, disappears in a day or two, and extends beyond the limit of the parietal bone."

In speaking of caput succedaneum, Cazeaux and Tarnier say: "This tumor, when large, is the result of a slow and painful labor; it is always single; and may be distinguished from the cephalhematoma, with which

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it has long been confounded, by the following characters: the caput is irregularly circumscribed, whilst the limits of the cephalhematoma are very distinct; in the former, the hairy scalp is of a well-marked violet color; the tumefaction has an edematous consistence, retaining the impression of the finger, and is not fluctuating, whilst the skin of the latter is colorless, presenting a well-marked fluctuation, occasionally even some pulsations, and its base is limited by a prominent osseous border."

So much for the distinct entity of the two conditions. Now as to the cephalhematomata being due to "prolonged labor and mechanical injuries resulting therefrom," it is a fact that more often than not this condition is noted in children born after perfectly easy, normal, and non-instrumental labors.

The following is a record of four cases of cephalhematoma occurring in 202 cases of childbirth under my observation, of which I have a record:

CASE I was that of a male child, the mother a secundipara. The first stage of labor lasted 3 hours, the second stage 10 minutes. No instruments were used. The position of the child was R. O. A.; the caput succedaneum was very slight and to the left posteriorly. Double cephalhematomata were noted on the second day, over the parietal bones, the left, the larger, measuring 6 x 3 cm.

CASE II.—The woman was a primipara, the child a male. The labor in the first stage lasted 14 hours; in the second stage 1½ hours, aided by the forceps. The caput succedaneum was thick and directly posterior. The position of the child was L. O. A. Double cephalhematomata were noted on seventh day.

CASE III.—The woman was a primipara, the labor in the first stage lasting 6 hours and 45 minutes, in the second stage 37 minutes. The position was L. O. A. The child was a male with the caput thick and directly posterior. A cephalhematoma was situated over the right parietal bone; the time of its appearance was not noted.

CASE IV.—The woman was a sextipara. The labor in the first stage lasted 8 hours, in the second stage 10 minutes; the position was L. O. A. The child was a female with no caput. A cephalhematoma existed over the right parietal bone, and was noted on the third day.

Of these cases, but one could have been considered born after a tedious or instrumental labor.

Semmelweiss[1] is said to have seen a cephalhematoma in a child delivered by Cesarean section.

Ashby divides cephalhematomata into two varieties: 1. A subaponeurotic, or a hemorrhage occurring under the occipitofrontalis aponeurosis and the periosteum; and 2. The subperiosteal.

The case related by Dr. Keown was most likely of both these varieties; had it been a caput succedaneum the tumor would have been found to be jelly-like in consistency, with a few minute hemorrhages scattered through it.

I have thus gone into detail on this subject, because I think the two terms are too often confounded, and a clear idea should be had in regard to the differences between them.

Very truly yours,

HENRY E. TULEY.

111 W. KENTUCKY ST., LOUISVILLE, KY.

[1] American Text-book of Diseases of Children.

# NEWS ITEMS.

***The Association of Assistant Physicians of Hospitals for the Insane*** held its second meeting at the Michigan Asylum for the Insane, Kalamazoo, Mich., October 24, 1895. The membership, originally composed of medical officers of the staffs of asylums in Michigan, Illinois, and Iowa, was extended to include the assistant superintendents and assistant physicians of all asylums. The next meeting will be held at the asylum at Independence, Iowa, during May, 1896.

***Perforation of the Rectum and Peritoneum.***—Dr. Weller Van Hook, 103 State Street, Chicago, will be grateful for reports of cases of perforation of rectum and peritoneum by impalement, to furnish the basis of a collective investigation. An interesting case of this kind was reported in THE NEWS of October 12, 1895.

***A Course of Five Lectures on Bacteriology*** is being delivered by Dr. M. V. Ball, at the Academy of Natural Sciences, Nineteenth and Race Streets, Philadelphia, on Saturdays at 3 P.M. The course began on November 16th and will continue to December 14th, inclusive. There is no charge for attendance.

***Pediatrics*** is the name of a new semimonthly publication to be devoted to the diseases of children. It is owned by Dr. Dillon Brown, of New York, and edited by Dr. George A. Carpenter, of London.

***Professor Johannes Gad***, of Berlin, has been elected the successor of the late Professor Hering in the Chair of Physiology in the University of Prague and in the directorship of the Physiologic Institute.

***Dr. James K. Young*** has been elected Professor of Orthopedic Surgery in the Philadelphia Polyclinic, and also Clinical Professor of Orthopedic Surgery in the Woman's Medical College.

***Dr. Friedrich Miescher***, a well-known and able physiologist, and at one time professor of physiology in Basle, died of pulmonary tuberculosis on August 26th, at the age of 51 years.

***Dr. H. C. Boenning*** has been elected Professor of Anatomy and Surgery in the Philadelphia Dental College, in succession to the late Dr. Garrettson.

***Two Football Deaths*** are reported in the daily papers, George Butterworth, of Rochdale, Scotland, and Samuel Steelfox, of Shamokin, Pa.

***Dr. Joseph W. Brockbank***, of Nicetown, Philadelphia, died of pneumonia on November 7th, at the age of 33 years.

***Dr. Robert Battey***, the distinguished gynecologist, died at Rome, Ga., on November 8th, at the age of 67 years.

***The Texas Sanitarian*** begins its fifth volume as the *Texas Medical News*.

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# THE MEDICAL NEWS.

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## ORIGINAL ARTICLES.

### THE USE OF ANTITOXIC SERUM FOR THE PREVENTION OF DIPHTHERIA.

BY HERMANN M. BIGGS, M.D.,
OF NEW YORK CITY.

GREAT interest was aroused about one year ago by the announcement of the discovery in diphtheria-antitoxin of a specific remedy for the treatment of diphtheria, and there has been but slight abatement of the interest in this agent since that time. Comparatively little attention, however, has been paid to its value in the prevention of diphtheria, and the few reports of its use for this purpose published in Europe have been inconclusive or disappointing.

The antitoxin produced by the New York City Health Department has been employed for the immunization of a large number of children both in public institutions in this city and in private families, under conditions particularly favorable for demonstrating its exact value, and the results have been in many respects very remarkable. It has been employed in public institutions both to control outbreaks of diphtheria and as a routine measure to protect inmates when there was evidence of possible or previous exposure to disease.

Brief reports of the results obtained in the New York Infant Asylum (Dr. Peck) and in the Nursery and Child's Hospital (Dr. Thomas) have already appeared.

The serum employed in all of the cases referred to in this report was produced by the New York Health Department, with the exception of that used at the New York Infant Asylum in January. The amount employed in each case has varied from 50 to 600 antitoxin-units, depending upon the age of the individual. Behring recommended in November last that 150 units should be employed for immunization, but added that in persons already infected and near the end of the incubation-stage, even 600 units might not entirely prevent the disease, as then it became a remedial agent and not a prophylactic.

Unfortunately the period of incubation of diphtheria is not known. It is, however, of short duration and probably does not ordinarily exceed 48 hours. As to the period of protection following the immunizing injections of the antitoxin, Aronson thinks the protection lasts from 3 to 4 weeks; Kossel, from 2 to 3 weeks; while our observation seems to show that it is usually at least 30 days.

#### EXPERIENCE AT THE NEW YORK INFANT ASYLUM.

From May, 1892, to February 18, 1894, no cases of diphtheria occurred in this institution, which ordinarily has about 400 inmates. From February 18 to September 1, 1894, there were 22 cases of diphtheria and 15 deaths. In September there were 16 cases, and from this time to January 16th (108 days), 107 cases of diphtheria occurred. These were very evenly distributed over this time, about 30 cases developing in each month. In the latter part of October systematic bacteriologic examinations of the throats of the healthy children showed that diphtheria-bacilli were present in so large a number that, in order to isolate these, nearly one-half the inmates were quarantined.

All efforts directed to checking the progress of the epidemic were unattended with success up to the time that the antitoxin was employed for immunization of the inmates. On January 16 and 17, 1895, 224 children were immunized with Behring's antitoxin No. 2. The quantity given to each child varied from 100 to 200 antitoxin-units, according to the age. From this date, January 16th to February 15th, only one case of diphtheria occurred. It appeared on February 3d and was of very mild type. On February 15th, 30 days after the administration of the antitoxin, a second case appeared, and from February 15th to February 28th five more cases developed, one on the 22d, one on the 24th, two on the 25th, one on the 27th. On the latter date, February 27th, the antitoxin was administered again to 245 children. The antitoxin in this instance was that produced in the laboratory of the New York City Health Department, and the dose administered to each child was increased 25 units throughout. No more cases of diphtheria occurred for 31 days.

On March 30th a case of mild diphtheria appeared in one of the children that had been immunized on February 27th. Cultures made from children in the same ward in which this case developed showed that in the throat of six there were typical Loeffler bacilli; each of these six children received then a third dose of 200 units of the same antitoxin on April 3d. Twelve days after this injection one of these children became slightly ill; a small patch of false membrane was found in one tonsil, the maximum temperature (which lasted only about 24 hours) was 100° F., and bacteriologic examination

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of the throat-secretions showed typical diphtheria-bacilli.

On April 18th, a child immunized on February 27th developed mild diphtheria complicated with severe bronchopneumonia; this case proved fatal, apparently as a result of the bronchopneumonia. On May 3d, a fourth case, very mild in character, appeared in one of the children immunized February 27th (66 days), and a fifth case, also mild in character, occurred on May 27th, 90 days after the immunization. No further cases developed. During this same period three cases of diphtheria occurred among children not immunized, who had been admitted subsequent to February 27th. Two of these died; none of them received antitoxin.

As contrasted with 107 cases in 108 days before the first immunization, there occurred five cases of mild character in 112 days after the second immunization. Reports from the house-physician, Dr. Peck, to whom I am indebted for these notes, show that, excepting a few mild skin-rashes, no bad effects followed the administration of the antitoxin in any case. Since May 27th the institution has been free from diphtheria.

### EXPERIENCE AT THE RECEPTION-HOUSE OF THE NEW YORK JUVENILE ASYLUM.

The inmates vary from 8 to 15 years of age, are admitted and kept under observation in the reception-house for about 3 weeks and are then transferred to the main institution. Admissions average about two daily.

During two months previous to April 13, 1895, there were 12 cases of diphtheria in the house; three occurred during the week immediately preceding April 13th; on that date 27 children were immunized with the antitoxin, each one receiving from 150 to 250 units. On April 27th antitoxin was administered to 10 more, in the throats of 7 of whom diphtheria-bacilli were shown to be present. The injections were continued at intervals as new children were admitted. The total number treated was 81. No cases of diphtheria occurred among those immunized, but two cases developed in children admitted about May 1st, who had not been immunized, and a short time later one of the attendants who had not been immunized developed diphtheria. These cases furnish conclusive evidence of the continued presence of infection in the institution.

### EXPERIENCE AT BELLEVUE HOSPITAL.

About May 1st, a case of diphtheria developed in a child in Ward 7. On May 7th a second child was taken ill. Both of these children had been in the hospital for more than 2 months, and no diphtheria had occurred in this ward for many months previously. Bacteriologic examination of the throats of 11 children remaining after the second case was removed showed that in 6 diphtheria-bacilli were present; these were immunized, about 200 antitoxin-units being administered to each. No more cases of diphtheria appeared. Three weeks later examination of the throats showed that all were free from diphtheria-bacilli.

### EXPERIENCE AT THE NURSERY AND CHILD'S HOSPITAL.[1]

Diphtheria appeared in this institution on January 18th; 46 cases occurred between January 18th and April 18th, of which 15 occurred between April 1st and April 18th, showing that the epidemic was steadily increasing up to the day of immunization. On April 18th, 110 children were immunized with serum furnished by the Health Department, and on April 29th the remainder, 26 in number, were immunized. Of these children, 77 were under one year of age and 59 were between one and four years of age. The dose administered to each varied from 50 to 200 units of antitoxin. Careful observations were made in each case as to the occurrence of albuminuria, elevation of temperature, and remote secondary lesions, with the following result: Four showed faint traces of albumin in the urine, lasting in no case more than 4 days and unattended with any symptoms pointing to disturbance of the kidneys. In 7, rashes occurred 8 or 9 days after the injection; these were not attended with any other symptoms. Immediately after the injection (within 12 hours) some cases showed elevation of temperature, *i. e.*, in 7 cases to 100° F., in 32 cases to 101°, in 16 to 102°, and in 4 to 103°. In all these children, however, the temperature had virtually returned to normal within 24 hours.

The amount of disturbance, as manifested by elevation of temperature, crying, restlessness, etc., seemed to be proportionate to the youth of the children and to the degree of debility. Stronger and older children showed little reaction.

No case of diphtheria occurred in the hospital among the children immunized, but 3 weeks later one of the assistant physicians, who had not been immunized, developed diphtheria, and 5 weeks later one of the nurses became ill. Both of these cases showed well-marked membrane on the tonsils and pharynx and bacteriologic examination demonstrated the presence of diphtheria-bacilli in the throat-secretions.

### EXPERIENCE AT THE HOUSE OF RECEPTION OF THE NEW YORK CATHOLIC PROTECTORY.

The reception-house of the New York Catholic Protectory receives the children of destitute parents,

[1] I am indebted to Dr. A. M. Thomas, visiting physician, for these notes.

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keeps them for three weeks, and then transfers them to the Protectory proper at Westchester, New York.

On Sunday, July 7, 1895, 2 cases of diphtheria developed in the institution. On the following day 2 more cases appeared, and on Tuesday, July 9th, a fifth case; 5 cases of diphtheria had thus appeared in three days.

On July 9th and 10th, 67 children then in the institution were immunized. The ages of the children ranged from 2½ to 15 years.

The size of the dose was graded as follows:[1]

| | |
|---|---|
| 2½ to 5 years | 150 to 300 units. |
| 6 " 10 " | 400 units. |
| 11 " 15 " | 500 to 600 units. |

Each child's temperature was taken morning and evening for two days after the injection. There was in three or four a slight elevation of temperature, which subsided in each within two days. In several instances, an erythematous patch, varying in size from one to four inches in diameter, appeared within two or three days about the needle-puncture. Only one of these caused any discomfort, and this promptly subsided upon the application of a wet 1:60 phenol dressing. Unfortunately it was impossible to secure specimens of urine before the administration of the antitoxin, but after the administration, on July 11th, specimens were obtained from all the children treated. Examinations gave negative results in all but ten cases. In these, more or less albumin was found on one or more examinations and then entirely disappeared. No after-effects, except the albuminuria as described, were observed. Two or three of the children, after about 10 days, showed a few erythematous blotches upon the skin, more or less generally distributed, but these lasted only a few hours. No cases of diphtheria developed after immunization among those treated.

In addition to these 67 children, a few days later one of the attendants and his two children were also immunized. None of these showed albuminuria, local symptoms, or urticaria.

On August 5th, diphtheria developed in a child that had been admitted the day previously. The source of infection was unknown. At this time none of the children was in the house that had been there when the first general immunization was practised.

On August 9th, the physician in charge requested that the new inmates be immunized. Directions were at once given to obtain specimens of urine from all the children for examination before the administration of the antitoxin. On August 10th, the 37 inmates were immunized in the same manner as before. These children averaged older than those previously treated. Most of them were from 11 to 14 years of age, only 7 being under 10 years.

The dosage was graded as follows:

| | | |
|---|---|---|
| 2 years | 1 case | 200 units. |
| 3 " | 1 " | 250 " |
| 6 " | 1 " | 350 " |
| 7 to 12 years | 20 cases | 400 to 500 units. |
| 13 to 20 " | 14 " | 500 to 600 " |

The injection having been made in the forenoon, most of the children showed temperatures of from 99° to 99.5° the same evening, two or three reaching 100° and one 100.6°. During the two days on which observations were made most of the temperatures subsided to normal, a few remaining at 99°. No cases except those mentioned later showed any constitutional symptoms after the injections.

In only two cases was there any local irritation. In one of these the symptoms promptly subsided without treatment; the other, unfortunately, developed an abscess. This case was a fifteen-year-old boy who had received 600 units, under exactly the same antiseptic precautions as were employed in the other cases; he complained the next day of soreness, pain, and swelling in his thigh. The symptoms increased in spite of the local application of wet phenol dressings; and on August 15th he was removed to the New York Hospital, where a large abscess was evacuated. It is difficult to understand how the infection took place, inasmuch as the children that were injected immediately before and immediately after him in the same manner, and with serum from the same horse, showed no reaction whatever.

In the last group of cases, 37 in number, specimens of urine were obtained before the injections to compare with those taken after the administration of the serum. The results of the examinations are as follows:

| | Before immunization. August 9th. | | After immunization. Aug 11th. | | Aug. 13th. |
|---|---|---|---|---|---|
| | Sp.gr. | Albumin. | Sp.gr. | Albumin. | Albumin. |
| Felice Ferolo, | 1022 | Trace. | ... | Negative. | Negative. |
| Patrick Donovan, | ... | Negative. | 1030 | Trace. | " |
| Jos. Dillon, | ... | " | ... | " | " |
| Francesca Viria, | ... | " | ... | 5 p. ct. | " |
| Annie De Borger, | 1024 | 30 p. ct. in vol. | ... | 60 " | " |
| Jennie De Borger, | ... | Negative. | ... | 16 " | " |

One child showed 30 per cent. in volume of albumin (the urine, after boiling and the addition of nitric acid, was allowed to stand for 24 hours, and the amount then estimated) in the urine before the treatment, and after the injection about 60 per cent. in volume. The urine from the sister of this child showed no albumin before the injection, and 16 per cent. after it. Neither of these children gave the slightest evidence of illness other than the albuminuria at any time, and neither showed any

[1] The doses administered to these children are larger than required and are larger than it is desirable to use.

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temperature-reaction. In both of these cases, as in all the others, the albumin had entirely disappeared two days later.

Nine days after the injections, one case developed an urticaria which lasted for 24 hours. No other cases showing skin-rashes were observed.

On August 10th, the day following the immunization, Annie Brady, 12 years old, a sister of the child that developed diphtheria on August 6th, complained of sore-throat, and had a temperature of 101°. She had received the day before 500 units of the antitoxin. When seen on August 10th, she presented the clinical appearance of a mild case of left-sided follicular tonsillitis. Only a few white spots, easily rubbed off, were seen in the mouths of the follicles; no membrane whatever was visible, but a culture demonstrated the presence of Loeffler bacilli. The temperature, 101° on the first day, was at no time thereafter higher than 99°, and within two days the throat presented a perfectly normal appearance. She was kept isolated, and cultures taken every two days up to September 9th all showed the presence of Loeffler bacilli. It is an interesting question as to whether this was a case of simple tonsillitis in which the diphtheria-bacilli chanced to be present in the throat, but were not active, or whether it was one of true diphtheria, so modified by the anticipating effect of 500 units of the antitoxin as to display none of the clinical appearances of the disease.

On August 20th, May Brady, a second sister of the child removed with diphtheria, developed sore-throat, and was promptly isolated. On the 21st, examination disclosed congestion of the whole throat, with a few spots in the mouths of the follicles of the left tonsil. The appearance and symptoms were like those of the preceding case, only still milder. Culture failed to show the presence of Loeffler bacilli. No other cases of diphtheria or sore throat developed.

### IMMUNIZATION BY HEALTH-DEPARTMENT INSPECTORS IN INFECTED FAMILIES.

For some months past in families in which diphtheria has occurred, and in which there were other children exposed to infection, the Department Inspectors, acting on their own judgment as to the necessity, have immunized some of these exposed persons. Most of these cases have been among the tenement-house population. A few cases taken at random from the reports of the inspectors illustrate the method:

FAMILY 1.—Five children in family; two cases of diphtheria; the other three children, aged 9, 11, and 13 years, were immunized; no further cases occurred.

FAMILY 2.—Three children in family; one case of diphtheria; two other children, aged 8 and 16 years, immunized, one child had diphtheria-bacilli in the throat at the time. No further cases of diphtheria.

FAMILY 3.—Three children in family; one case of diphtheria, one of the remaining two children immunized; second child, aged 16, not immunized. This child developed diphtheria three weeks later, and was successfully treated with the antitoxin.

Cases like the foregoing might be repeated almost indefinitely; 232 persons had been immunized in this way up to October 1st, and of these, at least 93 (many of the others were not examined bacteriologically before being immunized) had diphtheria-bacilli present in their throats when treated. The cases were kept under observation until the premises had been disinfected, and this was not done until the throats of all were free from bacilli.

| | No. of cases immunized. | No. of units of antitoxin administered. | No. of cases of diphtheria developing among those immunized between 1 and 30 days. | No. of cases of diphtheria developing within 24 hours. | No. of cases of diphtheria developing after 30 days. | No. of cases of diphtheria that occurred in the institutions previous to immunization. |
|---|---|---|---|---|---|---|
| New York Infant Asylum (1st immunization) | 224 | 100 to 200 | 1 mild on the 19th day. | 0 | 6 | 107 cases in 108 days. |
| " " " " (2d immunization) | 245 | 125 to 225 | 1 mild on the 12th day. | 0 | 4 | 6 cases in 12 days. |
| Nursery and Child's Hospital | 136 | 50 to 200 | 0 | 0 | 0 | 46 cases in 90 days. 15 cases in 15 days. |
| New York Juvenile Asylum | 81 | 150 to 250 | 0 | 0 | 0 | 12 cases; 3 cases in 2 days. |
| New York Catholic Protectory | 114 | 150 to 600 | 0 | 1 | 0 | 5 cases in 3 days. |
| Bellevue Hospital | 11 | 175 to 225 | 0 | 0 | 0 | 2 cases in 10 days. |
| Health Department Inspectors | 232 | 150 to 250 | 1 mild on the 19th day. | 3 | 3 (1:30, 1:31, 1:55) | One or more cases in more than 90 families. |
| Total | 1043 | ..... | 3 | 4 | 13 | |

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Among these 232 persons, three developed membranous croup within 24 hours of the time when they were treated; all recovered. Three others had mild pharyngeal diphtheria, developing one on the 19th, one on the 30th, and one on the 31st day after injection, and one developed a fatal diphtheria on the 55th day.

The cases detailed number altogether 1043; 224 of these were immunized twice; the first time with Behring's serum, and the second time with the New York Health Department serum. In a large percentage of the whole number diphtheria-bacilli were present in the throat when the serum was administered, and all had been exposed to diphtheria under conditions more or less favorable for the transmission of the disease. Among those immunized 3 cases of diphtheria occurred between 1 and 30 days after the treatment; *i. e.*, one on the 12th, one on the 17th, and one on the 19th day, respectively. Twelve cases developed diphtheria later, as follows: On the 30th day, two; 31st day, one; 33d day, one; 37th day, one; 39th day, one; 40th day, two; 42d day, one; 52d day, one; 55th day, one; 66th day, one; 90th day, one. The four cases that developed croup within 24 hours of the injection undoubtedly had the disease at the time of injection. Altogether, therefore, excluding these, 16 cases of diphtheria occurred among 1014 persons—three in from 1 to 30 days, and 13 in from 30 to 110 days after immunization. These cases were all mild, excepting two, one of which proved fatal from diphtheria, and in the other death seemed to be due to bronchopneumonia complicated by a mild diphtheria.

During 90 days preceding immunization, under practically the same conditions, it may be said that more than 225 cases of diphtheria occurred. By the use of the antitoxin it has been possible to stamp out completely diphtheria in four great institutions for the care of children in which it was prevailing in more or less epidemic form. In no instance has there been, so far as can be determined, any serious results from the administration of the remedy for this purpose.

The duration of immunity in many cases is apparently not more than 30 days, but it may be for a much longer period. The doses required to confer immunity are probably between 50 and 300 antitoxin units according to the age of the individual treated.

## DIAGNOSIS OF RENAL CALCULUS IN WOMEN.

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IT becomes more and more evident with the increasing frequency of operations upon the kidney that serious errors in the diagnosis of renal calculus are often committed. Not infrequently a patient who has a persistent pain in the lumbar region, blood or pus in the urine, or a retroperitoneal lumbar tumor, is operated upon for calculus of the kidney, and the operation fails to demonstrate the existence of the stone.

I have seen repeated failures where all these signs existed in the same patient and had persisted for a long time.

The presence of pus in the urine is one of the most characteristic signs of calculus in the pelvis of the kidney, but from the mixed urines of the bladder it is impossible to say from which side the pus comes; or, if pain and swelling point distinctly to one side, it cannot be asserted after any ordinary examination that the other side is not affected too.

In so far as pus is diagnostic of the presence of a stone in the kidney, and it is one of the most characteristic factors, though by no means pathognomonic, I have been able to simplify the matter by my method of catheterization of the ureter under a direct inspection, the bladder being distended with air by the posture of the patient. In order to secure a sufficient quantity of urine for satisfactory examination, it is necessary to leave the catheters in the ureters anywhere from a quarter of an hour to several hours. I found that flexible catheters were better for this purpose than the metallic ones that I had been previously using. I therefore had a series of catheters made, 2, 2¼, 2½ mm. in diameter, and 30 cm. (12 in.) long, constructed of woven silk, coated with many layers of shellac, and with a highly polished outer surface. The end of the catheter is blunt and conical, and has a large oval eye 2 cm. back of the extremity. In a warm room the catheter is often too flexible to be introduced into the ureter and it coils in the bladder; this difficulty is overcome by stiffening it with a wire stylet, when the point of the catheter is placed within the ureteral orifice, and then the catheter is simply pulled off the stylet, which is held rigidly as the catheter passes up the ureter. By means of catheters introduced one on either side the urines from the right and left kidneys are collected in separate test-tubes held in two auger-holes bored in a block of wood that is placed in the bed between the patient's legs. The right side must be carefully marked by a piece of string or some other device to prevent confusion.

An analysis of these urines, with the microscopic examination, then shows the presence of pus on one or both sides, and the amount of urea in each indicates the working coefficiency of the kidney.

With the knowledge gained by this sort of examination of the two sides, the operator is posted as to the amount of risk he incurs in operating upon one of the kidneys. He also knows what risk he runs in removing a crippled kidney, if he is tempted to do so by the amount of disease found.



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In addition to this indispensable means of diagnosis, I have recently been able to add two other signs of absolute certainty that are applicable in a large number of cases of renal calculi.

FIG. 1.

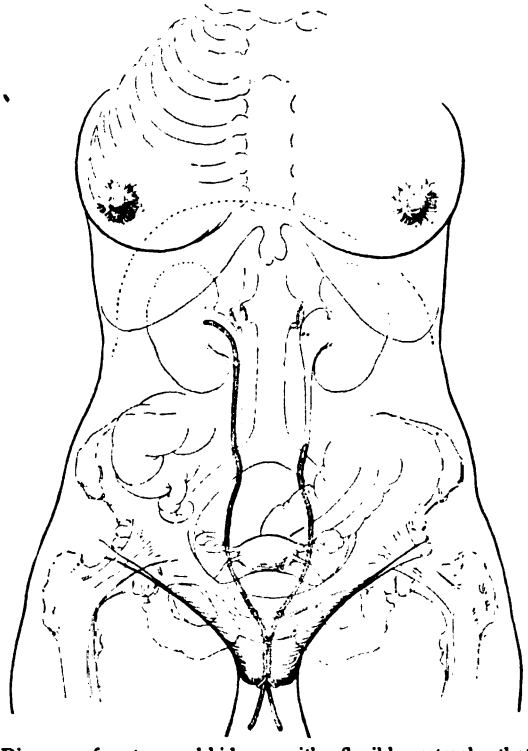

Diagram of ureters and kidneys, with a flexible ureteral catheter introduced just above the superior strait and draining the left kidney; on the right side a flexible renal catheter has been introduced and the extremity lies in the pelvis of the kidney. The ends of both catheters project from the urethra.

For the purpose of this examination I use renal catheters and renal bougies. The renal catheters vary in diameter from 1¾ to 2½ mm., and are 50 cm. (20 in.) long. In all other respects they are like the ureteral catheters already spoken of. The catheter is used in the following way: The ureteral orifice is exposed and the catheter introduced, say No. 2 or 2¼, and pushed gradually on upward until resistance to further advance is felt. In general about from 13 to 17 cm. (6 to 7 in.) of the catheter is left projecting from the urethra. Then taking an air-tight syringe with a tapering metallic point, and connecting it by means of a piece of fine rubber tubing with the end of the catheter, strong suction is exercised. If there is any pus present, this is often brought at once down into the syringe, and begins to flow long before it would naturally without suction. The suction is continued until the renal pelvis is emptied, and the fluid obtained is placed in a conical graduate for careful examination.

In three cases I have been able to diagnosticate the presence of renal calculi by discovering in this fluid a minute, dark-brownish or blackish sediment consisting of little pieces of material about a half-millimeter or less in diameter. On placing these under the microscope and testing them they were found to be composed of uric acid. Their appearance on the surface was mammillated, looking like an aggregation of little masses of rounded stone. On pressing them with a needle-point they were found to be quite coherent, each separate particle bending and breaking under pressure.

The first case in which the diagnosis was made in this way was the following:

CASE I. *Miss S.; several black specks withdrawn from pelvis of kidney by suction. Microscopic and microchemic examination showed them to be masses of uric acid. Operation; renal calculus; recovery.*— The patient, Miss S., aged 29, had spent not less than 10 years in treatment, principally at the various university towns of Europe, where she could secure distinguished counsel. She finally came to me through the courtesy of my friend, Dr. Max Koehler, of Cincinnati. She was of slight build, weighing 106 pounds, and complained of indigestion, a sense of pressure in the abdomen, headache, and irregular bowels. The discomfort she felt in the abdomen was located chiefly on the right side, but no tenderness, pain, or enlargement could be found out by palpation. The urine had also persistently contained pus for 10 years, and on two occasions she had passed some blood. Among others, she had seen Prof. Ultzmann and Prof. Czerny, of Heidelberg, who had diagnosticated a catarrhal pyelitis.

She dated her ailment from a chill taken at a ball, during menstruation, and stated that after this time the urine was affected.

FIG. 2.

Stone found in the pelvis of the right kidney (Case I), diagnosticated by the flexible renal catheter and removed by lumbar section.

On examination, I found the uterus and the pelvic organs normal in size and position. The urine contained pus and a bacillus resembling the colon-bacillus. I placed the woman in the knee-breast position and passed a small speculum into the bladder, and distended it atmospherically, so that all of the bladder-wall could be well seen; this was found to be healthy. I found by catheterizing the uterers separately that the left side secreted normal, clear urine, entirely free from pus; but when the catheter was passed up to the pelvis of the right kidney, 3 or 4 cc. of turbid urine escaped, which under culture developed the colon-bacillus. The fact that there were several cubic centimeters of urine found in the pelvis of the kidney each time showed that there was a stoppage at the juncture of the ureter with the renal pelvis. Ordinarily, in two minutes' time 13 cc. of urine were discharged from the right

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kidney, while under normal conditions the flow should not be more than 1 cc. I was never able at any time to trace the source of infection. The final result of the treatment showed that it was not due to any communication with the bowel.

I began treatment by introducing the renal catheter and washing out the pelvis of the kidney, and did this more than 100 times. At first there was some slight improvement, but later the trouble persistently grew worse, the pus increasing in quantity and becoming quite thick. The injections used were at first boric acid; a few times weak solutions of silver nitrate, and, finally, solutions of mercuric chlorid, beginning with a strength of 1 : 100,000, and gradually reduced to 1 : 5000. This was kept up throughout the winter of 1894–95.

On two occasions upon emptying the pelvis of the kidney by strong suction, applied at the end of a catheter by means of an air-tight syringe connected with it by a short piece of thick, rubber tubing, I found in the bottom of the conical glass receiver several minute, black specks not over a half-millimeter in diameter. On putting these under a microscope, they turned out to be little masses of uric acid, holding firmly together, and only crushed with some difficulty by the point of a needle. At no time had any similar pieces been found in the urine passed in the usual way. On the basis of this find, associated with the fact that it was impossible to clear up the urine coming from the pelvis of the kidney, I concluded that the patient had a stone in the pelvis.

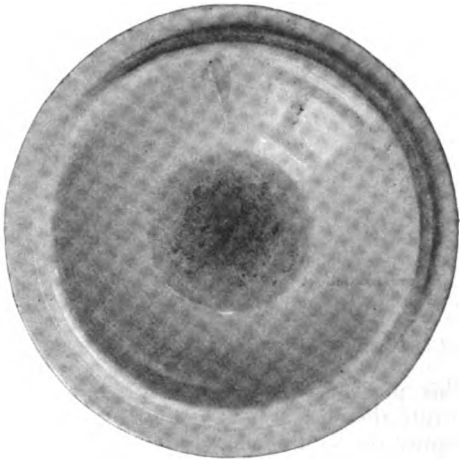
I operated March 30th, removing a small, black, rough, uric-acid calculus, 11 x 16 mm., shown in Fig. 2, natural size. The kidney was brought out through a lumbar incision, the renal pelvis opened posteriorly, and the stone was found lying in the lower part of the pelvis over the ureteral opening. After its removal, the pelvis was closed by suture with catgut. Before closing, the ureter was palpated and found normal down to the pelvic brim. The abdominal incision was closed down to a small opening in the loin left for a gauze-drain.

The patient recovered rapidly, and the urine cleared up completely. When she left my care early in June there was absolutely no pus in it, and, on catheterizing the kidney for a final examination through the bladder and ureter it was proved that clear urine was secreted in the normal manner, and all trace of the stoppage at the junction of the ureter with the pelvis had disappeared.

CASE II. *Malignant disease of the right kidney; hydronephrosis of low grade; bits of renal calculus brought away by suction applied through the renal catheter.*—The patient had a large right kidney, either carcinomatous or sarcomatous. I found upon carrying the renal catheter up into the pelvis that about 10 cc. of clear urine escaped at once, and on putting on strong suction some fine, black granules were brought down which, under the microscope, appeared exactly like those just described in the case of Miss S. The percentage of urea, estimated from urine drawn from the sound side, was 1.7, while in the urine from the diseased side it was only 0.7. The patient's condition did not admit of any operative interference, and nothing was done.

CASE III. *Calculous pyonephrosis; diagnosis made by the renal catheter bringing away pieces of stone; a large piece caught in the eye of the catheter; scratch-marks on the end of the catheter.*—The third case came to me from Chicago, referred for diagnosis by the courtesy of my friends, Dr. N. S. Davis, Jr., and Dr. Fernand Henrotin. The patient was about 46 years of age, and suffered from a persistent pyuria of

FIG. 3.



Sediment drawn down in Case III, August, 1895. The larger masses are tissue-débris. The minute granules are detritus of a calculus.

doubtful origin. I passed a renal catheter into the pelvis of the kidney, and by means of strong suction brought down at once a small quantity of urine mixed with abundant pus. A quantity of fine, granular, amorphous débris shown in the sediment in the figure came down with it, and interspersed with this were some small, blackish particles looking like grains of pepper. (See Fig. 3.) These under the microscope were found to be little, brownish masses of uric acid.

FIG. 4.

FIG. 5.

Fig. 4. Stone caught in eye of catheter. Natural size.
Fig. 5. Free broken-off surace of the same stone, magnified 18 times.

On withdrawing the catheter an irregular piece of stone, a millimeter in diameter, was found wedged in the eye as shown in Fig. 4. On putting this under the microscope, under a low power, one surface was found to be discolored black and to be mammillated, and made up of a number of little rounded elevations set together with shallow sulci

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between them. The opposite surface, however, was of an entirely different color, being of a light buff, and it was broken, jagged, and crystalline, with sharp ridges. (See Fig. 5.) It was therefore evident

FIG. 6.

End of catheter hammered down and scratched. Magnified.

that this piece had been freshly broken off and drawn into the eye of the catheter by the suction.

In addition to this conclusive evidence of the existence of a stone in the pelvis of the kidney, I

FIG. 7. FIG. 8. FIG. 9.

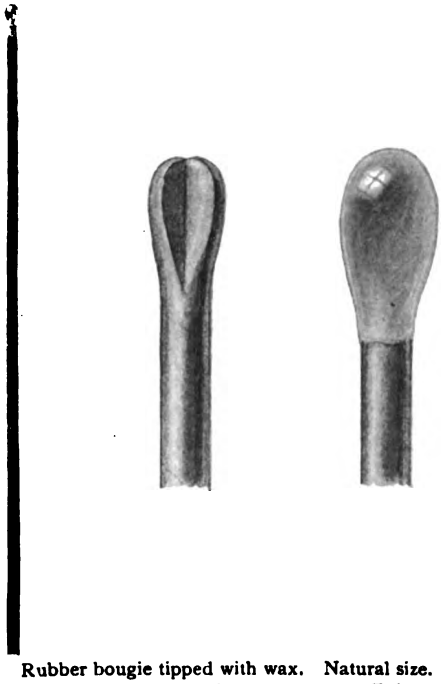

Fig. 7. Rubber bougie tipped with wax. Natural size.

Fig. 8. Hard-rubber bougie, showing groove. Enlarged four times.

Fig 9. Rubber bougie tipped with dental wax. Enlarged four times. The clear spot is the reflection of a window on a smooth surface.

found further confirmatory evidence of the most satisfactory sort upon withdrawing the catheter and putting the end under a weak magnifying power. The smooth, hard, varnished surface was chipped off on one side, and the smooth, round end was hammered down and irregular, as shown in the annexed figure, demonstrating that it had been brought into violent contact with a hard surface.

I had already thought of making a diagnosis in this way. I had made last spring a hard-rubber renal bougie, 2 mm. in diameter, with an olive point, 3 x 2 mm., notched on two sides, the notch running lengthwise; to use this, I melted some dental wax and coated the end of the bougie with it, giving it a smooth, glossy, impressionable point, which is not altered by any kind of contact with the soft tissues, but is easily scratched by a stone. (See Figs. 6, 7, 8, and 9.) I did not happen to have this at hand at this examination, and so made the diagnosis, as stated, with the catheter alone. I expect the bougie to prove more serviceable than the catheter in the future.

This patient has not yet been operated upon, but the diagnostic factors detailed leave no doubt as to the condition in the pelvis of the kidneys.

To recapitulate, I have been able by means of these cases to establish the following points:

1. By renal catheters to demonstrate a unilateral or a bilateral pyelitis and the grade of each.

2. By suction at the outer end of the catheter to bring down bits of stone for microscopic and microchemic examination.

3. The color of these pieces of stone signified a long retention in the pelvis of the kindey.

4. A piece of stone, black and rounded on one side, and light-colored and jagged on the opposite, was evidently broken off from a larger calculus and caught in the eye of the catheter by friction and suction.

5. The bruised end of the catheter was conclusive evidence of violent contact with a hard body.

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## RECENT EXPERIENCES IN THE SURGERY OF THE HYPERTROPHIED PROSTATE.

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I HAVE so lately reviewed this whole subject (*Annals of Surgery*, July, 1895) that it now seem, worth while merely to bring the existing evidence up to date and submit it to the profession. I am the more interested in doing this for the reason that I am in constant receipt of letters of inquiry from physicians as to the present status of the operation.

I need not recapitulate any of the historic or theoretic portions of the preceding paper, and I have no new facts bearing upon the value of the removal of one testicle in prostatic cases.

If the 3 deaths contained in this series (Kummell Bangs, Keyes) are added to the 20 contained in the previous list, it makes the present known mortality 17.9 per cent., or about what it was before. But

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following the plan I then adopted and throwing out the obviously inappropriate cases, those of Bangs and Keyes may be excluded, as the former had pronounced against the operation and the latter says he was "over-persuaded" into its performance. Of the details of Kummell's fatal case I have no information, but if it is included among those in which there was a reasonable expectation of recovery from the operation, it makes 8 deaths in 120 cases, a mortality of 6.2 per cent.

This certainly compares favorably with the mortality-records of all other forms of operative treatment of prostatic hypertrophy, while the degree of relief experienced and the percentage of cases that may fairly be called "cures" are both far in advance of the results obtained by other methods.

To the 111 cases contained in the table already published 24 new cases are to be added.

CASE I reported by Lütken in the *Deutsche medicinische Wochenschrift*, January 31, 1895, was inadvertently omitted from my table published in the July *Annals of Surgery*. A man, aged 65 years, had difficulty in passing urine for several years. The catheter had to be used seven or eight times daily, which of late caused great pain and occasionally free hemorrhage. Digital examination revealed a prostate about the size of a hen's egg. As no improvement followed the usual methods of treatment castration was recommended and accepted. Ten days after the operation the left half of the gland was found to have decreased in size. A month later this half had almost disappeared and the other side was about the size of a walnut. Four months later no enlargement of the prostate could be detected. Immediately after the operation the catheter was used less frequently than before, and at the end of ten days was discarded entirely. The patient five months after the operation was perfectly well and could pass a good-sized stream of water. The author prefers this operation to other methods of treatment and even to regular catheterism. No living spermatozoa could be found in the testes, which argues against the view that these organs must be functionally active in order to get shrinking of the prostate after castration.

CASE II.—Swain (*British Medical Journal*, January 5, 1895) reported an interesting case which was also accidentally omitted from my table. He operated on a patient 73 years of age with a typical prostatic history. The man had had several attacks of retention; catheterism was becoming increasingly frequent and painful, and when he came under observation was for a time impossible, aspiration above the pubes being employed for two days. Mr. Swain continues the description of the case as follows:

"On the third day I succeeded in passing a metallic prostatic catheter, which traversed the urethra for 9½ inches before the urine began to flow; the considerable depression of the handle which was necessary suggested that the middle lobe, as well as the lateral lobes, was much enlarged. For about ten days his bladder was irrigated night and morning with boric-acid lotion, and, although the urine then contained very little blood and was less fetid, the prostate did not diminish in size, and the patient was getting gradually worse. The kidneys were presumably healthy, as the total amount of urea excreted daily was about normal. After the matter had been fully explained to the patient, I performed double castration on September 11th. In consequence of the decomposition of the urine it was necessary to continue the irrigation of the bladder for three weeks after the operation; but on the seventh day the patient passed a small quantity of water of his own accord, and this gradually increased in amount, so that when the washing out of the bladder was stopped he passed all his urine naturally. Coincidently with this his general condition improved, and the prostate gradually became smaller.

"There was a perceptible diminution in the size of the prostate at the end of the first week after operation, but in the third, fourth, and fifth weeks the increasing atrophy appeared to progress more rapidly. In three weeks after operation the patient began to get about, and in five weeks he was discharged. At this time his general condition had much improved; his urine was normal, he sometimes passed half a pint at a time, but he could not hold his water for more than four or five hours in the daytime. There was no 'residual urine' in the bladder; the prostate was comparatively soft and about the size of a large horse-chestnut. If a catheter was introduced, it passed easily, and urine began to flow along it when a distance of 8 in. from the orifice of the urethra had been reached without any more depression of the handle than is usual.

"I saw the patient on December 11th, 13 weeks after operation, and found that since his discharge he has not once had to use a catheter or to get up at night to pass water, and is now free from any difficulty in emptying his bladder, and the urine is normal in appearance and has no bad odor. On rectal examination, the prostate was felt to be rather smaller and firmer than at the last examination."

CASE III.—Dr. Edward Boeckman, of St. Paul, Minnesota, tells me in a letter dated June 24th that three days previously he had performed double castration on an old man who had been entirely dependent upon the use of the catheter for more than a year. He was able to pass urine voluntarily the same night and has had no occasion to use the catheter since.

CASE IV.—Dr. Boeckman reported the following case in the *Northwestern Lancet* of June 1, 1895: A farmer, aged 64 years, had complained of difficult urination for two years. At the time he came under observation he was obliged to pass water from every fifteen to thirty minutes. He also had a feeling of fulness in the perineum, constant desire to urinate, discomfort after the act, and dull pains in the lower part of the abdomen. His general health had begun to suffer, he had lost flesh and had a poor appetite. Palpation of the abdomen revealed an enormously distended bladder extending a couple of inches above the umbilicus. Digital examination of the prostate showed that the gland was the size and shape of half a lemon. With a hard catheter

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1500 grams of residual urine were withdrawn. The urine was clear, pale, slightly acid, and did not contain albumin. The patient exhibited some degree of general arterio-sclerosis. He was castrated May 20, 1893, and returned to his home six days after the operation. At this time the residual urine was 900 grams and the prostate was beginning to shrink. The patient was examined in January of this year, at which time he looked well and thought himself as hearty in every way as he had ever been. He was obliged to rise a couple of times at night, as had been his habit since he was a child, but he was not bothered in any other way. He was free from all local or constitutional difficulties. The bladder could not be palpated through the abdominal wall; the prostate was considerably diminished in size in all directions, but yet moderately enlarged. The urethra was of normal length; the catheter passed easily. The residual urine measured 400 grams and was normal.

CASE V.—Dr. Frank W. Ross, of Elmira, N. Y., has communicated to me the details of the following case, in which he performed castration for enlargement of the prostate, early in May of this year: A man, aged 63, of good habits, had suffered from intermittent retention of urine, requiring the use of the catheter part of the time for three years previously. He had cystitis, residual urine, and a urethritis from the use of the catheter. The patient was placed in bed and the ordinary methods of treatment were adopted, but with little benefit. He was despondent and anxious to have any means employed that offered hope of relief. Double castration was performed, and five days after the operation the patient was able to pass water without the catheter, which was used, however, once a day for a week. No other treatment was employed excepting the administration of potassium citrate. The patient was in the hospital about six weeks. When admitted the prostate was 3 inches in length and hard and firm. When discharged it had decreased one-half in size. The cystitis had been relieved; there had been no retention and no residual urine. The patient was able to pass water naturally and freely and without the least trouble. He was obliged to get up but once or twice during the night, if at all. A letter received from the patient a few days before the date of Dr. Ross' letter states that he considers himself cured.

(To be concluded)

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## THE TREATMENT OF ENTERIC FEVER BY SYSTEMATIC COLD BATHING IN THE PENNSYLVANIA HOSPITAL, PHILADELPHIA.

### *Notes based upon Seventy-one Cases observed during a Service of Three Months ending November 1, 1895.*

BY J. C. WILSON, M.D.,

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WHEN, at the beginning of my term of service, August 1, 1895, I took charge of the wards, they contained a number of convalescent cases of enteric fever, and two cases, admitted a few days previously, still in the mid-course of the attack. Of this number, these two cases only are included in the following statistics.

At the date of the preparation of this paper, November 14, 1895, there remain in the wards of those admitted during my service 17 patients fully convalescent from enteric fever—that is to say, with a normal temperature for ten days or more—and 8 still in the course of the attack. In estimating the mortality-percentages these eight cases are not considered.

Of the 71 cases, 49 were males, 22 females. The ages were: 15 years and under, 8; from 15 to 20 years, 12; from 20 to 25 years, 26; from 25 to 30 years, 16; from 30 to 35 years, 3; over 35 years, 6 —total 71. The youngest was 4 years of age; the oldest 69. The greatest number of the cases were admitted during the second week of the attack; a few during the first week, and still fewer during the third week. Of the 71 cases, all but 5 were treated by cold baths, the exceptions being cases to be referred to later, in which the diagnosis was for a time obscure.

The treatment consisted in the administration of one or two laxative doses of calomel to patients admitted prior to the tenth day; a full plunge-bath at a temperature of about 70° F. (21.1° C.) every third hour so long as the axillary temperature continued to rise to 102° F. (38.8° C.); the administration of alcohol in the form of whisky before, during, or immediately after the bath according to the requirements of individual cases. The amount of whisky varied from 4 to 8 or 10 fluidounces in the course of 24 hours. The diet consisted chiefly of milk and broths, and no solid food was given until the temperature had been practically normal for a week. In a few instances, feeble, irregular cardiac action was regarded as an indication for the administration of moderate doses of strychnin. So soon as with a fall of temperature the baths were discontinued, 15-drop doses of dilute hydrochloric acid were administered to patients with coated tongue, and in whom the hunger of convalescence was not present. To those in whom postfebrile anemia was profound the mistura ferri et ammonii acetatis was administered. The majority of the patients, however, with the exception of one or two laxative doses of calomel shortly after admission, received no medicine during the course of the attack or during convalescence.

In the 71 cases relapse occurred in 5 instances, 7 per cent.; three males, two females. Multiple relapses did not occur. Hemorrhage occurred in 5 cases, 7 per cent.; three males, two females. All of these cases recovered.

Intestinal perforation, as established by post-mortem examination, occurred in one case. In

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two other cases the diagnosis of perforation was rendered probable by sudden abdominal pain, tenderness, and tympanites, followed by fatal collapse. The patients in these two instances were Russian Jews, and postmortem examination was not permitted. Taking the three cases together, perforation occurred in 4.2 per cent. The conditions in all three cases in which symptoms of perforation showed themselves were such as to preclude surgical intervention.

Left-sided croupous pneumonia with pericarditis occurred in one instance. This patient recovered.

Peripheral neuritis, affecting the lower extremities and attended for some time with distressing pain, occurred in one instance.

A complicating croupous pneumonia with parotid bubo occurred in a single case. This patient still remains in the ward, and is very ill.

A painful arthritis of the right sterno-clavicular articulation with neuritis of the brachial nerve and its branches occurred in one instance.

Furunculosis constituted a troublesome condition during convalescence in several cases. As a rule, the furuncles were distributed on the back, buttocks, arms, and the outer aspect of the thighs. They were usually small and few in number. In some cases, however, there were as many as 15 or 20 furuncles present.

Crops of pustules, circumscribed and symmetrically arranged, developed in four cases during convalescence, on the inner side of both legs just below the knee. They were very painful and tender, but speedily disappeared.

Crural phlebitis developed in two cases.

The diazo-reaction was noted in the urine of eleven cases out of fourteen examined between the tenth and the twenty-second day of the attack. In fifteen additional cases, in which the test was made later than the twenty-second day of the attack, the response did not occur.

As a rule, convalescence was uninterrupted and satisfactory. Patients were usually permitted to return to their homes about the end of the second week after complete defervescence.

The average stay in the house of 42 cases terminating in recovery was 33.5 days.

Five of the cases were of short duration, the history indicating a sickness of less than a week prior to admission, and defervescence being complete in from 5 to 7 days.

Four cases terminated fatally. Deducting the 8 cases with active fever still in the wards, the records show 63 cases with 4 deaths—a general mortality of 6.3 per cent. Of the 4 fatal cases, 2 were not bathed. Of those that recovered 3 were not bathed. Deducting the 5 cases not bathed, we find 58 cases treated by systematic cold bathing with 2 deaths—a mortality of 3.4 per cent.

These facts do not justify generalizations in regard to the results of the treatment. In the series of cases treated by systematic cold bathing at the German Hospital of Philadelphia we find a first group of 40 consecutive cases, without a death; a second of 54 cases, with 1 death; a third of 66 cases, with 7 deaths; a fourth of 66 cases, with 4 deaths; a fifth of 74 cases, with 8 deaths; and a sixth of 108 cases, with 12 deaths.

The fatal cases were as follows:

HOUSE No. 1001.—M. E., male, aged 18, Russian, a tailor, was admitted on the 21st day of August, 1895, with a history of irregular fever for five weeks; splenic enlargement; rose-spots not present on admission, but noted two days later; rash abundant and well characterized. The man had 82 baths, which were well borne, reaction being prompt. On the 22d day after admission he suddenly developed signs of perforation with great distention; effacement of liver-dulness; rapid fever-pulse; shallow respiration. He became collapsed, and died in the course of 24 hours.

HOUSE No. 1084.—J. T., male, colored, aged 20, a laborer, was admitted September 2, 1895, a walking-case, having been ill two weeks. On admission the temperature was 102° F. It subsequently ranged between 100° and 101.8° F. This patient was not bathed, nor was the diagnosis made. On the second day symptoms of peritonitis developed and death occurred on the fourth day. After death a large number of typhoid ulcers were found in the lower two feet of the ileum. About four inches above the ileocecal valve there was a small circular perforation in the floor of one of the ulcers. The vermiform appendix contained three concretions; one the size of a cherry-stone, the other two the size of grape-seeds. There was no necrosis or ulceration of the mucous membrane of the appendix.

HOUSE No. 1141.—J. B., male, a native of Russia, aged 30, a tailor, was admitted September 10, 1895, having been ill two weeks. Abdominal pain and diarrhea were prominent symptoms. The temperature-range was comparatively low, only on three occasions reaching 103°. Twelve baths were administered, each being followed by rather prolonged lowering of temperature. The reaction was not good. Signs of perforation developed on the 20th and death occurred on the following day.

HOUSE No. 1395.—A. S., female, Irish, widow, aged 69, a seamstress, was admitted October 19, 1895, having been ill 8 days. There were tenderness and pain in the right side, diarrhea, with thin, yellow stools, and great depression. There were a number of well-characterized rose-spots on the anterior surface of the thorax and abdomen. The temperature on admission was 100.4° F., rising on the following day to 101.2° F. Two days later an apoplectic seizure occurred, with coma, complete relaxation, and rapid rise of temperature to 103.8° F. Death occurred on the 23d.

In the following cases the diagnosis was for a time obscure:

HOUSE No. 1265. *Enteric fever, cerebrospinal form.*—R. C., male, aged 4, a Russian, was admitted

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October 1, 1895. The patient's parents were immigrants who had been in this country but six weeks. On the voyage hither a younger sister had suffered from some fever and upon their arrival at Philadelphia had been sent to a hospital. The patient had been out of health for some time, with constipation, followed by diarrhea and headache. Four days prior to admission he complained of pain, swelling and tenderness of the belly. On admission there was slight, painful rigidity of the muscles of the back of the neck. There was some spasmodic contraction of the muscles of the arms and hands. Except slight dilatation, there were no pupillary symptoms, no strabismus, no trismus; there was no disease of the ears.

A few hours after admission there was a sudden drop in the patient's temperature from 102° to 95° F. It, however, rapidly rose again. The patient was fretful; he lay on his side, with the limbs flexed. There were manifest evidences of pain upon being disturbed. Ankle-clonus was elicited and the knee-jerks were increased. There was slight albuminuria with hyaline and granular casts. There were one or two herpetic vesicles upon the lips and a few pustules in the occipital region and on the trunk. The tongue was moist, thickly coated with a white, pasty fur; it was red at the tip and edges.

On the third day after admission a crop of typical rose-spots appeared upon the abdomen and chest. The spleen was now made out to be markedly enlarged. About this time there was a rapid amelioration of the nervous symptoms; the reflex phenomena subsided; there was less pain on movement and the case presented the symptoms of a typical enteric fever of moderate severity in childhood. Treatment was by systematic cold baths. Convalescence was retarded by furunculosis.

HOUSE No. 839. *Enteric fever, pulmonary form.*—A. M., female, aged 22, unmarried, a domestic, was admitted August 1, 1895. The patient stated that she was perfectly well until about a week before admission, when an infant in the family in which she was employed died in her lap after a short sickness. She was much shocked, became very weak, and stated that she had been out of her head. The temperature was normal on admission. The woman was very weak and apathetic, with complete loss of appetite; the tongue was coated; the bowels constipated. There was cough, with disseminated small mucous râles on both sides. Two days later the morning temperature rose to 102.3° F.; the evening temperature was 104° F. The tongue was coated and tremulous; the abdomen slightly tympanitic; splenic dulness was somewhat enlarged. Signs of bronchopneumonia developed, being much more marked upon the right than upon the left side. The condition remained much the same, with marked hebetude, irregular fever, and marked physical signs of pulmonary disturbance until the 19th, when intestinal hemorrhage took place. Prior to this, one or two suspicious spots had been noted upon the abdomen. This patient was bathed and made a tedious but satisfactory recovery.

HOUSE No. 855. *Enteric fever, pulmonary form.*—W. T. B., male, aged 33, unmarried, a aborer, was admitted August 2, 1895, having been sent to the hospital by a competent physician as a case of acute diffuse tuberculosis. His illness had developed gradually during the preceding fortnight, with loss of appetite, prostration, severe headache, abdominal cramps, and tenderness. Had had no diarrhea or bleeding at the nose. There had been cough, blood-stained expectoration, rapid loss of flesh, and painful stiffness of the back. Upon admission the temperature was 100° F., the pulse 88, the respiration 28. The face was flushed, the pupils not dilated, the tongue tremulous and coated, the area of splenic dulness not increased. There was abdominal tenderness with pain, but no tympanites. There was marked percussion-dulness over the lower lobe on the right side posteriorly, feeble bronchovesicular respiration, and, upon deep inspiration, a few fine crepitant râles. This patient was very sick for a long time with cough, rusty sputum, marked fever, the temperature running at times as high as 104° F.; there were severe pleural pains on the right side, delirium, and vomiting. Two weeks after admission, for the first time, the area of splenic dulness was found to be increased. A little later the belly became tympanitic, and on the 19th day after admission for the first time the appearance of rose-spots was noted. From this time on the case ran the course of a severe enteric fever with very irregular temperature, the temperature first touching normal August 25th, 23 days after admission, but again rising, and defervescence not being completed until September 3d. This patient was not bathed.

HOUSE No. 1359. *Enteric fever, irregular form, with chills at onset.*—N. S., female, aged 21, unmarried, a dressmaker, was admitted October 14, 1895, on the seventh day of the sickness, which began with headache, pain in the back, and fever. The patient had had previous good health. On the first and second days chills occurred, followed by sweating. The patient took quinin freely prior to admission. The temperature on admission was 103.5° F. the urine normal; examination of the blood revealed no plasmodia. The tongue was dry and red at the edges; there was a good deal of tenderness in the right iliac fossa, with moderate splenic enlargement, and slight tympanites. The bowels were at first constipated; later, there was moderate diarrhea with yellowish stools. There was no eruption.

The attack came on at the close of menstruation, and the pain and tenderness in the lower part of the abdomen on the right side above Poupart's ligament suggested a local inflammatory process, implicating either the right uterine adnexa or the appendix. The patient was not bathed. The pain and tenderness gradually subsided, and the subsequent temperature-range justified the diagnosis of enteric fever.

HOUSE No. 1168.—An obscure case with very irregular temperature, was not systematically bathed, and was removed by his friends against advice. It was subsequently learned that he developed a well-characterized enteric fever.

I desire to express my thanks to Dr. F. A. Packard, who had the kindness to take charge of the service during my temporary absence; to Drs.

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Roberts, Nicholson, and Ward Brinton, House-physicians, without whose enthusiastic co-operation the notes could not have been made; and finally to Dr. Starbuck, House-physician, who studied the diazo-reaction.

## SEVENTEEN CASES OF CHRONIC (RELAPSING) APPENDICITIS, TREATED BY OPERATION.

BY HUNTER McGUIRE, M.D., LL.D.,
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(Concluded from page 566.)

LASTLY, a few words about the operation. I make a clean cut straight down on the most prominent part of the swelling, if there is any, or over the supposed site of the appendix, if there is no swelling. I begin near the anterior superior spinous process, and cut inward and slightly downward toward the inner border of the rectus. In fact, the incision is almost transverse. The more nearly transverse it can be made, the better the union afterward, and the less the danger of subsequent hernia. I am afraid of the plan of separating the fibers of the different planes of muscles with retractors and two assistants. The muscles must be injured, repair of bruised parts will be slower, hernia more common, and drainage, if needed, less perfect. The incision is not more than 2 in. long in the skin, and shorter as the cavity is reached. The peritoneum is opened most cautiously, as a piece of omentum, or, more important, a portion of the gut, may be adherent, and in the line of incision. After the belly is opened, Trendelenburg's position is of great assistance. If the appendix is difficult to find, I look for the anterior bundle of longitudinal muscular fibers of the colon, follow this as a guide, and it will usually lead one to the little organ. When found and separated, if attached, a circular cut through the peritoneal coat is made, and the serous membrane stripped down for half-an-inch; a fine silk ligature is tied around the muscular and mucous coats of the little process, and the appendix cut off. The ends of the ligature are cut short. The detached serous membrane is now brought back and stitched or tied over the end of the stump.

Any portion of the omentum that has been adherent and in contact with the appendix is ligated and cut off; no matter how large a portion it is, if it is injured or suspected of being infected, it is removed.

The most difficult part of the operation is to deal with the adhesions. It is very important, if it is possible to do so, that all adhesions should be undone. If they are left untouched, the patient may get well of the operation, but remain an invalid for the rest of his life, liable at any moment to intestinal occlusion, and subject always to tenderness over the abdomen, and to constant gastrointestinal uneasiness.

Iodoform is freely dusted over any injured places in the peritoneum, drainage of gauze introduced if deemed necessary, and the wound closed with a continued fine silk suture for the peritoneum, and silkworm-gut sutures for the muscles, fascia, and skin.

CASE I.—Mrs. W. H. B., 30, a patient of Dr. A. G. Taylor, of Chula Depot, Va., was admitted October 11, 1893. She has had repeated attacks of appendicitis; the duration of one attack was 2 weeks. The appendix was found very much enlarged and firmly adherent to the cecum; it lay fastened across the organ like a strap. The adhesions were old and well organized, and their separation was difficult and had to be made with the point of the knife. The appendix was found to be 5½ in. long, and as large as my thumb. After the appendix was separated from the cecum, the raw surfaces were rubbed over with Monsel's solution of ferrous sulphate, and the cavity of the abdomen closed. Recovery was uninterrupted.

CASE II.—Mrs. L. B., 42, a patient of Dr. Stuart McGuire, of Richmond, Va., was admitted November 24, 1893. She has had 5 attacks of appendicitis; the last attack was violent, confining her to bed for 3 weeks. The appendix was firmly adherent to the right ovary, which was enlarged and inflamed. Both appendix and ovary were removed, followed by an uninterrupted recovery. In this case the appendix was elongated, its cecal end partially occluded, its free end dilated and distended with gas, and the mucous coat thickened and diseased.

CASE III.—Miss L. B., 16, a patient of Dr. J. H. Young, of Burkeville, Va., was admitted November 3, 1893, with a history of one severe and several slight attacks of appendicitis, the last attack being very severe. The appendix was found in its normal position, slightly congested and free from adhesions. It was 6 in. long and ½ in. in diameter. The free extremity was enlarged, the base contracted; it was dense and firm, almost cartilaginous in consistency. The lumen next to the cecum was completely occluded by inflammatory deposit for the distance of an inch, and the mucous membrane which lined the patent portion of the tube was filled with a seromucous fluid. Recovery was uneventful.

CASE IV.—Miss A. J., 30, a patient of Dr. H. G. Melvin, of Houston, Va., was admitted December 4, 1893, with a history of several severe attacks of appendicular colic during the past year. The pain was violent, necessitating the use of morphin, lasting sometimes for hours, and on one or two occasions for days. The abdomen was opened and the appendix found at once; it stood up as if made of erectile tissue, and if pressed down would at once fly up in the erect position; its free end was dilated and filled with gas. For an inch from the cecum the little tube was apparently solid. The peritoneal covering was congested. There were no adhesions. The appendix was removed and recovery

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was uninterrupted. The operation was simple and quickly performed. The patient remains well.

CASE V.—Mrs. C. R. H., 45, a patient of Dr. C. V. Carrington, of Richmond, Va., was admitted December 27, 1894. An operation was performed on this lady for the removal of both ovaries and tubes 2½ years ago. Six months ago she had her first attack of appendicitis, and every 2 or 3 weeks since that time an attack occurred, each time after a shorter interval, and each time with more intense symptoms. I opened the abdomen and found the appendix swollen and congested and firmly adherent to the stump of the right ovary; it was peeled loose with some difficulty and removed. The appendix was greatly elongated and sharply bent at its cecal attachment. The lining membrane of the appendix showed ulcerative changes, and there was a large amount of mucopurulent secretion in it. She recovered without bad symptoms.

CASE VI.—Mrs. M. B. G., 34, a patient of Dr. James B. McCaw, of Richmond, Va., was admitted December 29, 1894, with a history of griping pains in her right side, the pain continuous, and subject to occasional severe exacerbations, which kept her in bed for days. An examination showed considerable enlargement of the right side; vaginal and rectal examination showed a large lump in the right iliac region. The right ovary was found to contain a dermoid cyst as large as an orange, to which the appendix had grown. The dermoid cyst was removed at the same time, and the woman made an uneventful recovery.

CASE VII.—Mrs. F. B. C., 24, a patient of Dr. Henckel, of Staunton, Va., was admitted December 30, 1894. Two years ago I removed her tubes and ovaries, which were extensively diseased. Six months ago she had her first attack of appendicitis. She has had in all about 5 severe attacks, each time confining her to bed, and requiring the use of morphin. The last attack was attended with great pain, swelling, and fever. The appendix was found attached to the stump of the right ovary; it was sharply bent upon itself and stretched. It was easily separated from its attachments, however, and brought out for inspection. It was found congested, red, and swollen, and after its removal was seen to contain several hard fecal masses. Recovery was uninterrupted.

CASE VIII.—Mrs. F. J. T., 48, a patient of Dr. Harrison, of Richmond, Va., was admitted January 9, 1895, with an ovarian tumor of several years' standing, but, as for a long time it gave her no trouble, she declined operative interference. Suddenly, however, and without any explanation, she began to suffer great pain in the right groin; the pain was continuous. Occasionally, however, she would have a sharp attack, which confined her to bed. On opening the abdomen, the first thing I saw was the appendix running across the face of the tumor like a little snake. It was firmly adherent and almost impossible of detachment without bursting it or the tumor. I removed it, however, and at the same time the ovarian tumor was taken away. Her recovery was complete.

CASE IX.—Miss N. T. S., 16, a patient of Dr. Stuart McGuire, of Richmond, Va., was admitted March 20, 1895, having had several attacks of acute appendicitis during the past year, but as 3 or 4 months had passed and no return of the trouble appeared, her parents sent her to Washington City to school. While there she had a pretty severe attack. Her parents brought her back after the attack subsided, and I deemed it best, after examination, to remove the appendix. The abdomen was opened, the appendix found closely adherent to the cecum, going transversely across the organ, and somewhat constricting the lumen of the bowel. It was peeled loose after a great deal of trouble and removed. A small opening was made in the cecum in detaching this appendix, which was closed with fine silk sutures. Recovery was uninterrupted.

CASE X.—Mrs. E. B. B., 35, a patient of Dr. R. E. Franklin, of Richmond, Va., was admitted March 29, 1895, having suffered for the last 6 months. The pain was usually confined to the right iliac region, but occasionally extended all over the abdomen. Her last attack kept her in bed for weeks, during which time she had fever, great pain, loss of appetite, and constipation difficult to overcome, and her life was thought to be in great danger by her attending physician and by myself, who saw her in consultation. The abdomen was opened and the appendix was found doubled on itself and fastened to the cecum; it was dense and firm in consistency and of unusual length. The omentum was closely adherent to the cecum and appendix; after separating the omental adhesions a large slice of the omentum was ligated and removed. An adherent coil of the intestine was also released. The appendix was removed and found full of fecal matter. The patient recovered without a bad symptom.

CASE XI.—Mr. G. H. G., 17, a patient of Dr. W. L. Drewry, of Wakefield, Va., was entered in December, 1893, with a history of several attacks of chronic relapsing appendicitis, the last one only a short time ago. This was very severe, and he was obliged to take a good deal of opium. I operated on him and came down, after the abdomen was opened, upon the omentum, slightly adherent to the parietal peritoneum. By palpation I could feel through the thin piece of omentum an abscess-cavity. Before opening this I stitched the surface of the omentum to the parietal peritoneum, so as to keep the cavity from the contents of the abscess. After carefully packing gauze around the edges of the opening I carried the knife through the omentum into the abscess-cavity; following it with my finger, I found the detached appendix, which was easily removed, along with one or two hard small fecal lumps. The cavity was then washed out carefully, a drainage-tube of rubber introduced, and the wound closed. Recovery was uneventful.

CASE XII.—Mr. W. C. B., 27, a patient of Dr. Keister, of South Boston, Va., was admitted April 6, 1895, having had 14 attacks of appendicitis, each more and more severe than the preceding one. I examined him some months ago and advised an operation, but he declined. Three weeks ago he had a very severe attack, attended with the usual

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symptoms. I opened the abdomen and found the omentum covering the cecum adherent to that organ, and difficult to detach. After separation a portion of the omentum was ligated and cut away. Several points of adherent bowel were separated. The appendix was fastened to the cecum for the greater portion of its length and was detached with difficulty. It was found after removal to be filled with foul-smelling pus. The parts about the cecum looked dirty, brown, and friable. Gauze-drainage was used and the cavity closed. The drainage was permitted to stay for 3 days and then removed. Recovery followed without any bad symptoms. The operation in this case lasted 75 minutes.

CASE XIII.—Mr. C. R., 30, a patient of Dr. Lewis Wheat, of Richmond, Va., was entered April 25, 1895. He had had three attacks of appendicitis, the last one very severe, keeping him in bed for 3 weeks. I saw him at this time in consultation with Dr. Wheat, and advised him not to have the operation done until the fever and acute symptoms had disappeared. I operated April 25th, 6 weeks after the subsidence of the last acute attack, and found very extensive adhesions, the omentum being fastened to the cecum. The adhesions were hard to break up. I found three points of adherent coils of intestine, which were separated with great care, and took a good deal of time. The appendix was fastened tightly to the cecum, and in detaching it I made a hole in the bowel about ½ in. long and ¼ in. wide. This was immediately sewed up with fine silk, and the appendix removed. It was found after removal to be closed at its cecal end; it contained a large quantity of bodies like boiled rice, but no pus. Gauze-drainage was inserted. The next morning the man was doing so well that the House-surgeon removed the gauze-drainage, although the discharge had been very free. As soon as the gauze was removed he began to get worse, and his temperature went up to 101°. That night, fortunately, I was able to replace the gauze and re-establish the drainage. The improvement was immediate, and his recovery after that was uneventful.

CASE XIV.—Mr. H. B. L., 21, a patient of Dr. David Lucas, of Quinton, Va., was entered March 22, 1895, having had 10 attacks of appendicitis, each successive one becoming more and more violent. I opened the abdomen March 24th, found the appendix with great difficulty, underneath the cecum, which organ was adherent to the iliac fossa, and had to be detached. The appendix, when found, was adherent for ¾ in. of its free end to the peritoneum covering the iliac vessels; it was closed for about 1 in. of its cecal portion; the free end of it was bulbous, swollen, dilated, and filled with dirty, foul-smelling pus. Around the appendix in the iliac fossa was deposited quite a quantity of stuff, which looked like boiled custard, probably about an ounce of it in all in that region. This was scraped out, curetted, and the cavity dusted thickly with iodoform. Gauze-drainage was freely used in this case, being allowed to remain for 3½ days. Recovery was uneventful.

CASE XV.—Mr. A. A. M., 28, a telegraph-operator, a patient of Dr. C. V. Robinson, of Petersburg, Va., was entered February 4, 1895. He had had repeated attacks of appendicitis in the last two years, the last ones being very severe, attended by vomiting, pain, fever, etc. The operation was performed February 5th. The omentum was fastened to the cecum and to the anterior abdominal wall; it was detached without great difficulty, however, and the detached portion ligated and removed. The appendix was found upon the inner side of the cecum, imbedded in a mass of inflammatory deposit. The adhesions were difficult to break, and at one time I was almost on the point of abandoning the attempt to find the appendix. When, however, the adhesions were completely removed, the appendix was found enlarged, swollen, perforated at its extremity, and so rotten that it was with great difficulty it could be handled and tied off. On the inner side of the cecum, at the site occupied by the appendix, was a cavity filled with some boiled-custard-like material. This was scooped out, the cavity-wall curetted and covered with iodoform. Gauze-drainage was used very freely, and the wound closed. It was impossible, in this case, to cover over the stump of the appendix with peritoneum as I usually do. The gauze-drainage was permitted to remain for 3 days, when it was removed, and the man recovered without any untoward symptoms. On June 5th, 4 months after the operation, an abscess formed in the abdominal wall; not in the cavity of the belly. This abscess was opened and drained by Drs. Budd and Robinson. The man came to see me August 1st quite well again.

CASE XVI.—Mr. G. M., 29, a bookkeeper, a patient of Dr. Lewis Harvie, of Danville, Va., was entered June 15, 1895, having had repeated attacks of appendicitis, which began about 18 months ago, and recurred every 2 or 3 months. One attack kept him in bed for 6 weeks. I operated June 18th, making the incision in the usual way, and found that the swelling was due to distention of a portion of the cecum. The appendix was small, fastened like a strap to the cecum, and intimately blended with the bowel. I removed it in the usual way, stripping it loose from the cecum, although it was difficult to do, and I was compelled sometimes to use the point of the knife. Gauze-drainage was used. The man recovered without a bad symptom.

CASE XVII.—Mr. J. H., 28, a patient of Drs. Austin and McChestney, of Lewisburg, W. Va., had had repeated attacks of appendicitis, requiring the free use of morphin to stop the pain. His general health had been impaired by the attacks. The most severe one was in the spring of last year, which confined him to bed for some time. He was never free from pain, and there was tenderness on pressure over the region of the appendix. I operated June 25, 1895, finding the adhesions very extensive, and the omentum fastened to the bowel at many places. The appendix was distended and enlarged, filled with mucopus, and its walls studded with numerous small, dark points. The operation was an exceedingly difficult one; the appendix was hidden under a mass of adhesions, which were old and well organized, and it was not until I had separated a great many of the adhesions that I was able to find the

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appendix at all. Gauze-drainage was used, and the patient did well for 24 hours. His temperature the morning after the operation was 99°. About 2 o'clock on the second day his temperature rose to 101°, at 4, 102°, at 5, 103°. Dr. Stuart McGuire had given him 5 gr. of calomel that morning, and afterward magnesium sulphate, both of which, however, were rejected. Enemata were used, the long rectal tube was employed, but all failed to move his bowels. The next day Dr. Stuart McGuire cut the stitches and opened the wound, found a pint or more of bloody serum in the cavity, the small intestine distended with gas, and a small piece of the omentum which I had detached was fastened to the bowel in the neighborhood. These were all broken loose, the abdomen flushed out, and a great many drains of sterilized gauze were inserted. The patient rallied well, and an hour later was apparently better than before this secondary operation; about dark, however, he began to fail, and died at 10.20 that night from septic peritonitis.

## *HEMIFACIAL ATROPHY.*

BY JAMES HENDRIE LLOYD, M.D.,
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A RARE disease is, or should be, something more than a mere pathologic curiosity. Such a disease always has its practical relationships. It is not reserved for the specialist alone, who knows how to diagnosticate it and may, or may not, know how to treat it. It is only too likely to fall to the lot of other practitioners, and it then imposes obligations and responsibilities upon them which a fair general acquaintance with it would do much to lighten. One of the evils of the increasing tendency to specialism is that it directs the attention of the general physician away from anything that looks a little strange and unduly interesting.

Another tendency at present is to regard only those diseases as *practical* that admit of ready and successful treatment. Those who take this view seem to forget that the science of diagnosis underlies the whole practice of medicine, and that the province of the physician is more frequently to know than to do.

Some such considerations as the foregoing must serve as an apology for presenting a brief statement of a rare, incurable disease, with a photograph of a patient afflicted with it, in a medical journal which aims especially to minister to the practical needs of the profession.

Hemifacial atrophy was apparently first described by Parry in 1835. The latest writer on the subject, Collins,[1] says that it is still a rare disease and that in an extended search of the literature he had been able to find only a few more than one hundred cases reported. The number of patients photographed is doubtless much smaller; and as the disease lends itself particularly well to photography, cases so presented are much increased in value.

The practical relationships of this disease are in no way better shown than by its etiology. Collins, from a study of reported cases, gives as real or apparent causes the following: local injury, such as pressure or blows on the head or face; local lesions, such as abscess behind the ear, inflammation of the lachrymal sac, and inflammation of a submaxillary gland resulting from a sore-throat; the infectious diseases, such as influenza, erysipelas, scarlatina, and typhoid fever. Hemifacial atrophy has been found associated also with such diseases as hysteria, epilepsy, locomotor ataxia, insanity, multiple sclerosis, and syringomyelia. It has occurred also in association with somewhat similar trophic lesions in other parts of the body, as scleroderma; and with some skin-diseases, as pityriasis rubra. Some of these alleged causes are perhaps open to doubt; but it seems probable that local traumata and other local lesions may be in some cases the starting-points of the affection. Lewin found a traumatic history in 14 out of 68 cases, and Mendel a peripheral origin in 19 out of 86 cases (quoted by Sachs).[1]

Hemifacial atrophy occurs more frequently in females than in males. It is most common in early adult life, although cases occur in childhood and in old age.

This disease, as its name indicates, is characterized by an atrophy of one side of the face. The exact location and extent of this wasting, as well as the accompanying symptoms, differ widely. Without exception, however, so far as I know, the disease does not extend across the median line. It usually begins as a circumscribed spot or patch, from which the pigment either disappears or in which it is altered, and in which the skin becomes notably thinned. From this, as from a center, the disease spreads. Not only the skin, but also the subcutaneous tissues and even the bones are soon involved. The muscular tissue is not, as a rule, so completely involved; but this rule varies. In some cases the muscles are wasted, in others they are the seats of tonic and clonic contractions. As the disease advances, great deformity results. The bones of the forehead and face may become extensively wasted, and this wasting may be so sharply demarcated at the median line that the patient presents almost the appearance of having received a saber-cut. The atrophy causes a scar-like tissue, which in some cases is bound to the bone beneath.

Tactile sensation is usually not involved; neither is the thermal or the pain-sense. In some cases neu-

[1] A Text-book of Nervous Diseases by American Authors, edited by F. X. Dercum, 1895.

[1] The Medical Record, March 15, 1890.

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ralgic pains have occurred. Thus Courtet[1] observed severe pain both before the onset of the disease and after its establishment. It was not unlike toothache, and was apparently caused by carious teeth.

The special senses, as a rule, are not affected. Exceptions are reported by Bannister (quoted by Mills),[2] who observed loss of taste, with atrophy of one side of the tongue. The ear-drum has been noted to be diseased in one case.

The muscles of mastication have been observed to be affected with both clonic and tonic spasms (Courtet, Sachs, and others). A veritable trismus, holding the jaw firmly, has occurred temporarily in some cases. Fibrillary contractions are occasionally seen.

In some cases the eye seems to be withdrawn into the socket (enophthalmia).

Other parts may be affected, as one nerve of the arm. This observation is a very rare one. The hard and soft palate, the uvula, and the gums of the affected side may be involved.

The hair of the affected region usually falls out. It may, in some instances, change color. The contrast in the growth of the beard on the two sides is sometimes very great. When the atrophy affects the scalp an area of alopecia is the result. This area is usually sharply demarcated.

Thesebaceous glands are atrophied with the skin. Sweating, as a rule, is not affected. Contraction of the pupil, variations in the normal surface-temperature, and even hyperidrosis are indications of involvement of the sympathetic nerve.

The disease is sometimes very slow in its course. It may be confined for years to one comparatively limited region, and does not by any means always involve the whole of one side of the face, or, at least, does not do this until very late in its course.

In the case which I report the disease is still in a comparatively early stage. As shown in the photograph, the lesion is limited to the forehead and upper and lateral parts of the nose.

A. S., a young Swedish woman, aged about 25, first noticed a white patch near the bridge of the nose several years before her case was brought to my notice. This patch gradually spread upward until it reached and finally invaded the hairy scalp.

The skin of this area was atrophied, the true skin almost destroyed, and the epidermis left as a dead-white, lifeless-looking, and shrivelled integument. The fat and connective tissue were also gone, and the bone was deeply atrophied—one might almost say eroded. The resulting lesion, confined strictly to one side, but extending quite up to the median line, had the appearance of a cleft, or, as it has been called, a saber-stroke. Where it involved the hairy scalp the hair had fallen out, leaving the unsightly lesion still more conspicuous (see figure). The disease had extended downward to one side of the nose, where it was as yet quite superficial, not involving the bone, and hence not appearing plainly in the photograph. It tended to spread also laterally on the forehead. There was no pain, itching, or subjective sense of any kind in the affected area. Neither was there anesthesia or analgesia. Sweating was apparently not increased.

All the other symptoms detailed earlier in this paper were absent—the disease being still of comparatively recent origin, and hence confined to a comparatively limited area, it is, perhaps, better depicted in the photograph than it can be by word.

In this case there was no known cause. The patient had received no local injury, nor had she had any local inflammation or lesion of any kind to which the disease could be ascribed. The affection was very slowly progressive, and during the six months that it was under my observation it yielded in no way to treatment. This treatment in fact was only empiric, for I know of nothing that has any power over the disease.

The diagnosis of hemifacial atrophy is usually not difficult. The disease is to be distinguished especially from the morphea of the dermatologists. This latter is apparently also a trophoneurosis, but it does not involve the bone. It is probably closely related to hemifacial atrophy, and some reported cases of it are apparently identical with the disease described here.

The prognosis of hemifacial atrophy is entirely unfavorable. Many writers, apparently following older examples, speak of the disease as not endangering life, and seem to wish to derive from this fact some element of comfort for their patients. This is cold comfort, however, as the patients naturally are much dismayed at the inveterate and disfiguring disease which marks them so terribly for life.

It is of some practical importance, perhaps, con-

[1] Gaz. Heb. de Méd., 1876, p. 195.

[2] Pepper's Syst. of Med., vol. v.

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sidering that hemifacial atrophy may follow surgical lesions, to emphasize the fact that in any unfortunate case in which it thus happens no responsibility can attach to the practitioner who has treated the primary lesion.

This disease is probably a true trophoneurosis. In the few autopsies that have been made (that especially of Mendel) the trigeminal nerve has been found involved in an inflammatory or degenerative process. The pathology has given rise to much speculation, which this is hardly the place to recapitulate at length.

In conclusion, I may say that I have used the term *hemifacial* atrophy as rather more accurate than *hemiatrophy* of the face, a term which is used by many writers.

## CLINICAL LECTURE.

### SOME PHASES OF SYPHILIS OF THE BRAIN.

*A Clinical Lecture delivered at the Philadelphia Hospital.*

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GENTLEMEN: Many diseases that are usually considered under other special heads are really syphilitic in origin. Encephalic and spinal tumors, arteritis and thrombosis of both cerebral and spinal arteries, hemorrhages, which are frequently the result of rupture of vessels weakened by syphilitic disease; and finally meningitis, encephalitis, and myelitis, and both meningoencephalitis and meningomyelitis, may all be syphilitic affections. Syphilis needs to be considered separately for certain practical reasons, one of the most important of which is that the lesions of syphilis are frequently not only multiple, but are of different pathologic types in the same case, and hence give a symptom-picture that has a stamp of its own. It is possible that a single gumma may be the only intracranial lesion, but this is a rare occurrence. Not only do we have in nervous syphilis lesions diverse in their pathologic characteristics, but frequently the disease shows a tendency to arrange itself under certain peculiar clinical types. The best method of considering syphilis of the nervous system is probably one that presents a series of such clinical types that occur with considerable frequency, and which can be related with comparative accuracy to lesions of a definite character. Most of the attempts to classify syphilitic diseases of the nervous system have been confusing and lacking in some essential features. Mickle, for instance, gives: (1) cerebrospinal; (2) hereditary; (3) spinal; (4) tabetic; (5) convulsive; (6) neuralgic. Here is a strange admixture of anatomic, etiologic, pathologic, and semeiologic factors as the bases of a single classification. Others, like H. C. Wood, after discussion of several clinical types—epilepsy, paralyses, cerebral and cranial, apoplectic and comatose attacks, and episodes of somnolence—abandon classes entirely for the study of special symptoms.

In approaching the subject of nervous syphilis, the first great general subdivision which should be made of cases as they present themselves in ordinary practice is into the affections directly due to the continuing action of the specific virus, and those which are the more or less remote consequence of this virus. These two classes constitute Fournier's *specific* or *syphilitic* and *parasyphilitic* diseases. The parasyphilitic diseases are affections that are the issue of syphilis, but are not its first and most direct results.

Fournier's distinction is one to be especially borne in mind in connection with the degenerative diseases or affections showing arrest of development, and in which a history of acquired or inherited syphilis is present. "The *specific* group arise from the specific action, processes, and lesions of syphilis. The *parasyphilitic* have origin in syphilis, are products of its action, under its influence, and without it in all probability would not be present; but although thus proceeding originally from syphilis are not of a syphilitic (specific) nature. As parasyphilitic, Fournier classes, for acquired syphilis: pigmentary syphilid; acute hysteroneurasthenia of the secondary stage and later neurasthenic symptoms; tabes; general paralysis; a special form of epilepsy; and of muscular atrophy. For hereditary syphilis: many general or partial dystrophies and organic malformations (*e.g.*, dental); physical or mental developmental defects, infantile types; cachexia; rickets; hydrocephalus; some cases of true epilepsy; certainly juvenile tabes and general paralysis." (Mickle.) To most of the diseases of the parasyphilitic class no allusion will be made in this lecture, although the wards of this hospital abound in illustrations. Their relation to syphilis needs separate and special consideration.

Let me at the outset, however, say a few words about syphilitic neurasthenia and syphilitic hysteria, typical cases of which have been described by Fournier, Kowalewsky, and Dercum. Typical cases of this category do not present marked ophthalmoscopic changes, nor any evidence of focal nervous disease, although aphasias and palsies are sometimes present. A syphilitic neurasthenic or hysteric is a patient who, with a clear history of syphilis, presents all the characteristics or some of the characteristics of a case of grave hysteria or neurasthenia. The affection may be primarily due to the effect of the syphilitic virus upon the blood; but sometimes it is the result of prolonged antisyphilitic treatment, or it may be dependent upon the psychic shock and depression largely caused by the knowledge of infection; or the changes that have taken place in the vessel-walls and in the nerve-tissues through the action of the poison—although these two last classes might as well be placed under some other head.

The cases now to be shown will be presented in the briefest possible manner in pursuance of my intention to give simply a bird's-eye view of some phases of syphilis of the brain illustrated by clinical cases. It will be understood that in these cases careful studies with detailed records have been made, but that time will permit me to present little more than the baldest outlines. The case with which I shall begin the series that will be used to illustrate these lectures was first supposed to be a case of hysteria in the male. The patient was sent to the ophthalmologic department of the hospital to have his fields of vision tested for the reversions and contractions so often present in grave hysteria.

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CASE I. *Case supposed to be one of hysteria or neurasthenia; ophthalmoscopic examination shows neuritis and perivasculitis; other evidences of cranial-nerve disease and cerebral involvement.*—The patient, P. L., has a clear history of syphilis. He had fallen into a peculiar mental state and presented evidences of general nervous and muscular weakness. On ophthalmoscopic examination, Dr. C. A. Oliver found a most interesting condition of neuritis with perivasculitis. His report is as follows: Marks of old plastic iritis are present, and most pronounced in the left eye. The ophthalmoscope shows a low grade of neuroretinitis, with perivasculitis on both sides and a broad hemorrhage in the right retina. Vision is normal, and the fields of vision are also normal. There is no motor disturbance. On the blackboard is a picture in colors, drawn by Miss M. Washington, the artist, from actual observation of this patient's eyes with the ophthalmoscope. This case is a striking illustration of the possibility of obtaining, by an examination of the eyes, an idea of the pathologic processes probably going on in and around the vessels of the brain. Similar conditions to those visible in the vessels, vessel-walls, and perivascular spaces of the fundus are probably present in the brain. The revelations of the ophthalmoscope led to a closer examination for other symptoms. The patient has a scarcely-perceptible awkwardness of articulation, the right side of his face droops slightly, but his tongue deviates very decidedly to the right. Mentally his condition is one of slight apathy with timidity and apprehension, with also a lack in his powers of attention. At times he is decidedly emotional.

The case is certainly not one of neurasthenia or hysteria pure and simple, although the functional weaknesses and disturbances may be due in part, at least, to the effects of the specific virus. Here are the clearest evidences of cranial-nerve disease and of some cerebral involvement, probably chiefly cortical and prefrontal. My main purpose in presenting this patient is to call attention to the fact that in some cases supposed to be instances of syphilitic neurasthenia and hysteria, signs of organic disease can, on close scrutiny, be found.

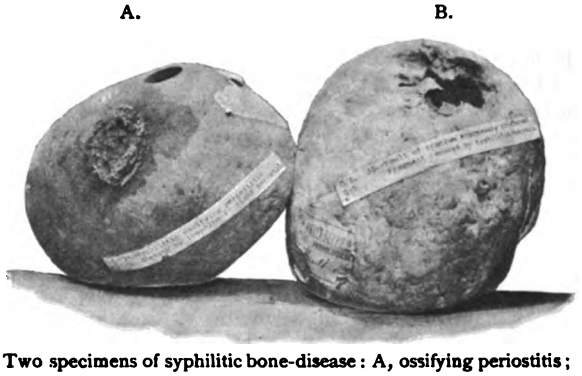
The best general classification of syphilitic (true specific) diseases of the nervous system is into *encephalic* or *intracranial*, *encephalospinal*, and *peripheral-spinal* (lesions of spinal nerves). Any one of the subdivisions of the nervous system may be separately affected; any two or more parts may be attacked at the same time, or all may simultaneously be the seat of active specific disease. The difficulties of subclassification are great. In the present lecture only encephalic syphilis will be considered, and chiefly those forms of it in which cranial-nerve disease is present, either alone or associated with disease of other parts of the brain.

Considering the subject from the pathologic side, perhaps no better practical classification has been made than that of Bramwell, who divides encephalic syphilitic lesions into (1) intracranial nodes with or without meningitis; (2) gummata; (3) lesions of the large or medium-sized bloodvessels, chiefly obliterative endarteritis; (4) diseases of the minute vessels, in many instances periarteritis rather than endarteritis; (5) localized encephalitis in the neighborhood of gummata and meningeal lesions; (6) inflammation of the intracranial portions of the peripheral nerves; and (7) meningeal inflammations without gummatous deposits(?). Almost every one of these classes of lesions will be illustrated by our cases.

Swellings or nodes due to syphilitic disease of the periosteum, or both the periosteum and the bone, may give rise to symptoms that simulate closely those of meningitis or tumor, and indeed meningitis, tumor, or softening due to vessel-disease may be associated with such nodes. These are often extracranial, and it is by no means uncommon to find intracranial nodes present in the same case with the extracranial swellings. The prominent symptom will usually be headache with evidences of pressure and irritation according to the site of the lesion. When such nodes are prefrontal and large, somnolence and mental hebetude may be marked. Paresis or affections of the special senses may be present. Occasionally these periosteal swellings are situated along the course of the cranial nerves or around their foramens of exit, and thus may give rise to cranial-nerve palsies, anesthesias, and neuralgias. As syphilitic nodes, either intracranial or extracranial, when efficiently treated, have a more favorable prognosis than some of the varieties of encephalic syphilis, it is important to bear in mind the probability of their existence. They sometimes melt away under active treatment with mercury and the iodids.

In the present lecture I have not the opportunity of showing any cases which I believe to be illustrations of syphilitic osseous or periosteal disease, although such cases are often found in the nervous wards of the hospital. I exhibit, however, two specimens (Fig. 1) from the Pathologic Museum. One of these is from a patient who was for many months under my care. Syphilitic periostitis, ostitis, and necrosis finally caused the large irregular opening seen in this calvarium. The nervous system of this patient was also attacked in various other ways by the specific virus. The other is a specimen of syphilitic ossifying periostitis. While some cases of periosteal and osseous syphilis are amenable to early and active treatment, this specimen shows the permanent ravages that may be produced by such diseases.

FIG. 1.




Two specimens of syphilitic bone-disease: A, ossifying periostitis; B, greatly thickened and necrosed calvarium.

The next cases, some of which I will present in groups, illustrate some of the most frequent clinical types seen in this hospital.

In the first place, encephalic cases are seen in which for a long time, or perhaps even until a fatal issue results, *only one or two dominating symptoms*, such as *headache*, *somnolence*, etc., are present.

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CASE II. *Headache, vomiting, and emaciation; double optic neuritis, but no motor or sensory symptoms.*—This patient is a German, 30 years old, with an uncertain past history. His present illness dates back three months. He began to suffer with great pain in the head, had no appetite, and after a few days was attacked with nausea and vomiting, which continued for one or two weeks. He had no paralytic or sensory symptoms. The only symptoms to which attention was attracted until the ophthalmoscope was used were headache, nausea, and vomiting, except that the man was neurasthenic and had lost flesh. I show you upon the blackboard another beautiful illustration in colors, drawn by Miss Washington, of the optic neuritis present in this case, and I append the notes of Dr. Oliver's examination. Neuroretinitis is present on both sides, older on the left, atrophic changes appearing in many places. This disc is swollen so as to project far into the vitreous, —5 D., as measured by the ophthalmoscope and by actual measurement 1.33 mm. Numerous hemorrhages are seen, some old, but for the most part new, extending along the main trunks of the retinal arteries and veins. Pupils partly dilated and irides sluggish to light. Vision is good.

It is probable that this patient has a gumma situated in one of the so-called latent regions of the brain, as, *e.g.*, the right temporal lobe. The growth might be located in the prefrontal region, although the patient does not present with any decisiveness the psychic phenomena of lesions in this locality. He has made great improvement under the use of potassium iodid in large doses.

CASE III. *Mental weakness, epilepsy, and polyuria.*—This patient is introduced simply to show that in typical cases of syphilitic disease a single symptom like polyuria may be the most prominent feature, or there may be one of two or three features in the symptomatology of the case. He has suffered for a long time from polyuria. He has also a clear history of syphilis and of subsequent convulsive seizures. He is 37 years old. He had a chancre in 1881, and four years later had an eruption, probably syphilitic. He has been somewhat weak mentally since 1888. Ordinary happenings do not leave any impression upon him. In 1890 he had a fit for the first time. When first affected he had four or five a week, but at present he averages one every two or three weeks. He bites his tongue in the seizures. He complains of great thirst and voids urine almost every half-hour day and night. In this case some local lesion of the pons may have caused the polyuria, while more diffuse lesions and secondary degeneration have induced the epilepsy and mild dementia.

In a certain rather large percentage of cases of intracranial syphilis, *affections of the cranial nerves* are the chief or only phenomena. In the first place, I say that they are *the chief* phenomena because in not a few of these cases casual observation or close investigation will show that other parts of the encephalon have been attacked by the disease. I have the opportunity of presenting an unusual series of cases illustrating the occurrence of these cranial-nerve affections, either alone or with symptoms showing implication of other regions than the base of the brain. The first case of this series is one in which marked disease of the cortex and of at least one of the cranial nerves is present at the same time. This is a somewhat frequent clinical combination in encephalic syphilis.

CASE IV. *Oculomotor paralysis with evidences of meningeal and cortical disease.*—This patient, M. F., is a woman, 45 years old, who has had no living children, but who has had three stillbirths. Her present illness has been attributed to a sunstroke, and this may well be true, and yet the case be one of intracranial syphilis, for excessive heat, traumatisms, and various other causes may light up the lurking syphilitic fire. On admission she was much deranged and papers were made out to send her to the insane-department, but the mental symptoms clearing up somewhat under specific and sedative treatment, she was admitted to the nervous wards. Her first attack came on with dizziness. About five months before admission she saw double and her right eye was closed by drooping of the upper lid. Just before admission she had a convulsive seizure. Her present condition is one of oculomotor paralysis (Fig. 2), with a slight

FIG. 2.

Right oculomotor paralysis, facial paresis, and meningocortical disease.

paresis of the right side of the face, some hesitation of speech, mild dementia, and a tendency to undue emotionality.

In succession I shall next present a case of third-nerve disease with multiple vascular and meningeal lesions, with the record of the autopsy; a case of paralysis of the abducens and of the iris; a case in which all the cranial nerves from the fifth to the ninth are conjointly involved; and a case in which only the seventh and eighth nerves are implicated. I believe that the origin of each of these cases was syphilis, although it is not possible in at least one of them to obtain a clear history of the infection.

CASE V. *Right oculomotor paralysis with paresis of left leg, and mental symptoms; long apoplectic period preceding death; autopsy showing fibroid meningitis, diffuse endarteritis, multiple thrombosis, and localized softenings.*—I show you now a specimen from a patient who was brought before the class during my lectures last year. She was 29 years old and had a previous history of dissipation. She had had sore throat, an eruption probably syphilitic, and had lost most of her hair. Her clinical history was that of headache; of an attack in which she lost for a time the use of her left leg; and

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also of complete right oculomotor paralysis. Later she became irritable, slightly demented and apathetic, and finally stuporous.

Her eyes were carefully examined by Dr. Oliver, who found on the right side complete ptosis, and all movements of the ball lost, except outward movements and a slight rolling motion upward and outward. The appearances presented by this patient with the paralyzed eye closed from the ptosis and held open are shown in Figs. 3

FIG. 3.

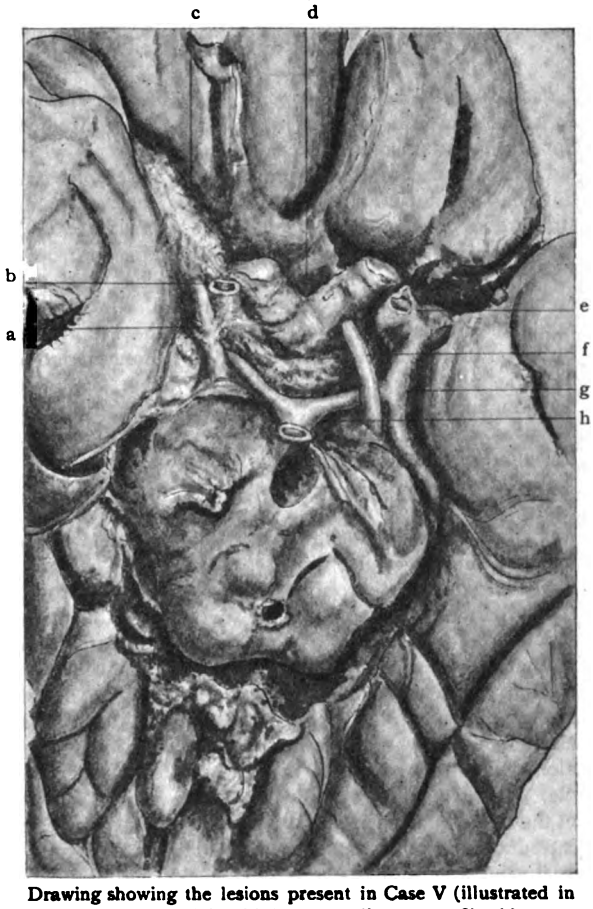
Oculomotor paralysis, showing ptosis. The case proved to be one of gummatous meningitis, endarteritis, and thrombosis of the internal carotid. The right third nerve was bound down by exudate.

FIG. 4.

Oculomotor paralysis: the eye held open. Same patient as Fig. 3.

and 4. The pupil of this eye was 4 mm. in diameter and immobile; both optic discs were gray. The patient died after a long apoplectic period in which she was comatose most of the time, and during which she had one slight convulsive seizure. The third-nerve paralysis on the right deepened; on the left the pupil became somewhat contracted and fixed. The following interesting conditions were found at the autopsy: The right internal carotid was free until within 2 or 3 mm. of the point where it penetrated the dura, where a plug, flesh-colored and well organized, was found in the artery. The right postcommunicant was reduced in size and the right precerebral was also very small; the left precerebral was very large, as was also the left postcommunicant. On the right side of the chiasm and the beginning of the optic nerve was a dense mass surrounding the internal carotid, and adherent to the optic nerve and third nerve; the mass lay in the beginning of the fissure of Sylvius, which it fairly obliterated. The left internal carotid also contained a clot about the position at which it joined the precerebral, the medicerebral, and the postcommunicant. The clot also extended into the medi-

FIG. 5.




Drawing showing the lesions present in Case V (illustrated in Figs. 3 and 4); a, right third nerve adherent to fibroid mass; b, right internal carotid plugged by a thrombus; c, fibroid mass filling the Sylvian fossa and extending backward to the crus; d, chiasm; e, left internal carotid containing recently organized thrombus; f, left third nerve; g, left postcommunicant at junction with postcerebral; h, basilar giving off postcerebral.

cerebral artery about half an inch. The cerebellum, pons, and oblongata showed nothing abnormal. The head of the caudatum and lenticula were softened, the material in the softened cavity being liquid and about the color of pus.

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Later I expect to have a full report made of the microscopic examination of this specimen. The gross appearances are well indicated in Fig. 5, which is a drawing made by Miss Washington from the actual specimen and from a photograph of it. This specimen shows a localized gummatous meningitis with fibroid change, associated with syphilitic endarteritis, thrombi forming toward the last. The third-nerve paralysis and the paresis of the left leg are readily explained by the lesion extending from the Sylvian fissure to the crus. The softening of the striatum was due to syphilis of the vessels and thrombosis. The disease of the vessels was chronic and not limited to the base of the brain. This case affords a beautiful illustration of a comparatively common form of encephalic syphilis with lesions diverse both in character and position. It is very probable that similiar lesions are present in Case IV.

(To be concluded.)

## MEDICAL PROGRESS.

***Unsuccessful Esophagostomy for Cicatricial Stricture.***—At a recent meeting of the Philadelphia County Medical Society, ROBERTS reported the case of a boy, 3½ years old, who, three months before coming under observation, had swallowed a solution of lye, which resulted in stricture of the esophagus. It was said that a month previously a rubber catheter could be passed through the contracted portion of the gullet. The child was greatly emaciated and very weak. An attempt was made to pass a flexible catheter down the esophagus, but even the smallest was arrested by a constriction at its upper part. A whalebone filiform bougie, such as is used in urethral surgery, was without much difficulty, however, pushed downward and apparently passed through the contracted portion of the tube.

As the child was evidently starving to death, it was determined to operate upon him. At first gastrotomy was considered. The bougie passed down the esophagus from the mouth would, it was thought, enable a strong ligature to be drawn from the stomach upward through the stricture. This would have been used to cut the stricture, as in Abbe's string-saw method. Careful examination of the patient, however, showed that the contraction was situated at a point sufficiently high to enable the esophagus to be opened below it. Accordingly esophagotomy was performed by making an incision along the anterior edge of the left sterno-mastoid muscle. The esophagus was opened a little below the level of the cricoid cartilage and a No. 12 soft-rubber catheter introduced into the stomach. The edges of the esophageal wound were then stitched to the skin and the catheter allowed to remain for the introduction of liquid food into the stomach. There was some difficulty in identifying the esophagus, which was necessarily small; because of the character of the lesion and the position of the thyroid gland. The left lobe of the thyroid gland extended to a higher level than the top of the larynx.

About half an inch above the first esophageal incision a second opening was made into the esophagus above the seat of constriction, and a rubber catheter passed upward into the mouth. Between these two openings the esophageal walls were largely cicatricial. An endeavor was made to dilate or lay open this portion of the tube, but was not successful. The point of a pair of forceps, introduced into what seemed the caliber of the esophagus, when forced upward passed backward behind the wall of the pharynx. The condition of the child was so bad as to render undesirable the prolongation of the etherization in order to lay open or cut away the cicatricial tissue, and it was accordingly determined to postpone further operation until the child could be nourished for a few days through the catheter used to convey liquid food into the stomach, The catheter that had been introduced into the portion of the esophagus above the stricture, and which protruded from the mouth, was withdrawn.

The child was fed on peptonized milk and stimulants in small quantities, but did not seem to rally well. On the tenth day a purpuric spot about four inches in diameter appeared upon the abdomen. This subcutaneous hemorrhage increased, the child became weaker, and died on the sixteenth day. It was impossible to keep the seat of operation aseptic, because food and mucus contaminated the wounded surfaces, notwithstanding the greatest care. Frequent washing of the part with mild antiseptic solutions was therefore maintained. The post-mortem examination showed that about three inches of the esophageal walls were almost entirely destroyed by suppuration. This rendered it difficult to preserve the connection between the upper and lower portions during removal of the specimen. The bodies of the vertebræ at this point were exposed, and the inter-vertebral cartilages loose. Some of them could have been easily removed by picking them out with forceps. The spaces between the loosened cartilages and the bones were filled with dark, foul-smelling pus. There was an area of consolidation about the root of the right lung posteriorly; incision into this portion of the lung showed it to contain material similar in appearance and of the same odor as that in the region of the wound.

***Patent Ventricular Septum in a Man of Twenty-nine.***—At the last meeting of the American Pediatric Society, JACOBI (*Archives of Pediatrics*, vol. xii, No. 11, p. 835) presented a Russian, twenty-nine years old, who three years previously had been seized suddenly with illness, manifested by dyspnea, palpitation, frequency and feebleness of pulse, and lividity. A loud cardiac murmur was heard whose character could not be made out, and the size of the heart was found to be fairly normal. The patient gave a history of blueness of the lips and nails for a period of twelve or fourteen years. Relief followed the administration of digitalis and later also of potassium iodid. Several attacks of similar character had occurred in the interval. The finger-nails were not only blue but also clubbed, and the toe-nails presented a similar appearance. The superficial veins were prominent but not dilated. Jugular pulse could not be detected. The area of cardiac dulness was little if at all increased. The cardiac impulse was strong. A loud murmur, largely systolic, but partly diastolic, could be heard over and about the ensiform cartilage. A diagnosis was made of tricuspid incompetency, with patent interventricular septum and probably congenital stenosis of the pulmonary artery. The symptoms were again mitigated by means of digitalis and potassium iodid and the murmur became musical in character. Later pulmonary hemorrhages occurred, with transient elevation

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of temperature and pain over the left ear. In the further progress of the case supraorbital neuralgia, occasional twitching of the left side of the face, aphasia, paralysis of the right side of the face and of the right hand, and rigidity of the neck were successively noticed. After death the heart was found to be slightly enlarged. The normal pulmonary artery arose from the body of the right ventricle; the conus arteriosus was absent. The caliber of the aorta was small, and the innominate, left carotid, and the subclavians were also small and arose from the ascending aorta. A small artery arose close to the left carotid, proceeding upward and probably representing a vertebral. The left ventricle was small; the right large, with eccentric hypertrophy. The ventricular septum was defective in its upper part, the opening readily admitting two fingers. The foramen ovale was closed. The duct of Botal was not appreciable. The tricuspid valve was much thickened and roughened. There was no evidence of recent disease. The brain was soft on the left side, normal on the right. The posterior horn of the left lateral ventricle contained a quantity of pus, and the cavity communicated with an abscess extending to the upper posterior part of the temporosphenoidal lobe, but not perforating the surface of the brain.

*The Transitory Derangement of Consciousness of Epilepsy.*—As the result of a study of the derangement of consciousness observed in various epileptic conditions, SIEMERLING (*Berliner klinische Wochenschrift*, 1895, Nos. 42, 43) maintains that a dreamy state of consciousness, rather than total or partial amnesia, constitutes the most significant feature of the epileptic psychoses. Various gradations exist among the individual varieties of the so-called acute and chronic epileptic psychoses. Epileptic or epileptoid conditions and psychoses must be considered as symptomatic of cerebral disease. States of transitory confusion are characterized by the occurrence of apparently orderly, indifferent, and inconspicuous manifestations, side by side with unusual, unexpected actions often of a violent character. Epileptic psychoses are always preceded by epileptic or epileptoid antecedents. Epileptoid conditions are more common than is generally believed, particularly vertiginous attacks. In the absence of epileptic or epileptoid symptoms the diagnosis must be based on other manifestations, such as amnesia, likeness of attacks, peculiarity of conduct, and of hallucinations.

*The Surgical Treatment of Infectious Cholangitis and Cholecystitis.*—TERRIER (*Progrès Médical*, 1895, No. 43, p. 257) maintains that when the biliary passages are the seat of inflammatory conditions occasioning pronounced febrile manifestations celiotomy is indicated for the purpose of effecting cholecystostomy. By this means the condition of the biliary tract can be determined, calculi present removed, and means of exit for the bile provided.

## THERAPEUTIC NOTES.

*The Treatment of Pneumonia with Inhalations of Large Doses of Amyl Nitrite.*—HAYEM (*Wiener medizin. Blätter*, 1895, No. 43, p. 682) reports the employment of amyl nitrite in large doses by inhalation in the treatment of both pneumonia and pulmonary tuberculosis. The results were more favorable in the former than in the latter condition. Tuberculous patients can inhale the vapor from a suitable receptacle. Pneumonia-patients used compresses, upon which fifteen drops of the pure drug were dropped and the compress held close to the nose and mouth, deep inspirations being made the while. When this quantity has evaporated the amount is repeated again, and perhaps twice or even thrice. In this way fifty drops may be employed in the course of five hours. The physiologic phenomena of flushing, pulsation, pressure, respiratory and circulatory acceleration, cough, dyspnea, etc., soon disappear and leave no bad effects. The treatment is continuous throughout the illness and for a few days beyond defervescence. The dosage must depend upon individual tolerance. Other therapeutic measures are not contraindicated. It is not contended that amyl nitrite thus used shortens the duration of the disease or affects the temperature-curve, although it mitigates the symptoms referable to the lungs. The effect is attributed to an influence upon the pulmonary circulation.

*Parachlorphenol for Laryngeal Tuberculosis.*—As the outcome of a clinical study, SPENGLER (*Archives des Sciences Biologiques*, T. 4, No. 1, p. 1) has reached the conclusion that parachlorphenol applied directly to the larynx or in a 10 per cent. solution in glycerin in the form of a spray will induce cauterization of tuberculous ulcers, superficial and deep, as well as resorption of tuberculous infiltration, without engendering evidence of irritative reaction. Solutions of parachlorphenol in glycerin have a local anesthetic effect upon tuberculous lesions, lasting for several hours. Parachlorphenol has the advantage over lactic acid and operative measures that it may be employed in all forms and all degrees of laryngeal tuberculosis up to the last hours of life. The drug exerts also a favorable action upon lupus involving the mucous membranes, and may here effect a perfect cure. It possesses most energetic disinfectant activity toward the tubercle-bacillus both in pure culture and in sputum.

*Strontium Carbonate as a Dentrifice.*—MÉTRAL (*Bull. Gén. de Thérap.*, October 30, 1895, p. 360) speaks highly of the use of strontium carbonate as a dentrifice. He has employed the following formulæ:

| | | |
|---|---|---|
| Strontium carbonate<br>Flowers of sulphur | āā | ʒiv. |
| Essence of rose | | gtt. vj.—M. |

To be triturated and used as a powder.

| | |
|---|---|
| Strontium carbonate | ʒiss. |
| Flowers of sulphur | gr. xlv. |
| Medicinal soap | ʒviss. |
| Essence of rose | gtt. vj. |

Mucilage of gum arabic and glycerin sufficient to make a paste.

*For Chronic Eczema.*—

| | |
|---|---|
| ℞.—Liquor carbonis detergent. | ♏xx. |
| Hydrarg. ammoniat | gr. xx. |
| Ung. zinci oxidi | fʒss. |
| Vaselin. | fʒss.—M. |

S.—Apply topically.

—*Practitioner*, vol. lx, No. 5.

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## UNLICENSED ANTIVIVISECTION.

IT appears evident to us that vivisection, and with it some of the best interests of scientific medicine, are now running one of the peculiar risks that arise from the constitution of modern society—the appeal to public opinion. This is always the last resort of those whose reasons are not so strong as their passions and prejudices; whose native wits are more at home in controversy than in discussion; and whose consciences, apparently, must have a million keepers.

The latest acute phase of the vivisection-question cropped out at Minneapolis at the recent meeting of the American Humane Association. The position taken there was noteworthy for two reasons: because, first, it exhibited a bad method; and because, second, it ignored the true ethical question involved.

We think that the method adopted by Dr. Leffingwell and by the special committee was bad because its aim was to appeal this question to popular prejudice. Their tone, and, in fact, their exact language, conveyed a threat which was intended to intimidate their opponents by holding up to them the bogie of social tyranny. Dr. Leffingwell's paper and the committee's report have both reached us through the columns of a daily newspaper, to which they were telegraphed in full from the scene of the meeting. The paper itself is a not very brilliant example of special pleading. In diplomatic language it gives the lie to a committee of Harvard professors, whose names and work are well known in all the scientific world. Dr. Leffingwell is not content to attempt to refute men who in their special fields are eminently able to take care of themselves; therefore, he charges them directly with falsehood. The merits of this style of warfare are generally well understood. The body of the paper is composed of disjointed quotations from scientific reports, each quotation seldom more than a few lines in length, embodying merely some technical description of a vivisection-experiment. The object of the experiment, the care and conscientiousness with which it was done in each instance, and the results obtained, can, of course, be in nowise determined from such garbled and mutilated data. The whole object is simply to bring out in bold relief some of the more or less shocking features of the experiments. This is not done for the benefit of scientific men, because such men would pay no heed to such unfair presentations of experiments; but it is done too evidently in order to catch the eye and harrow up the sensibilities of lay readers. The paper, in our judgment, is a very strong argument, not against vivisection, as its writer intended, but against making the question an instrument for popular agitation.

We have made these strictures deliberately and in spite of the fact that the Committee's report embodies the results of an appeal to two-thousand physicians, clergymen, writers, and educators in the States of New York and Massachusetts. This appeal does not alter the fact for us, that the obvious intention is to catch the popular eye and to win popular favor. About the personality of these two-thousand individuals we have but limited means of knowing anything, and about their special fitness for forming a judgment on the subject of vivisection we know but little. But, taking even physicians at large, we need only point out the fact that the large majority of them have absolutely no practical acquaintance with the methods of, and even with the necessity for, vivisection. It is even a well-known fact that some physicians bitterly oppose vivisection with all the prejudice of professed agitators. The opinion of one specialist—like Pasteur, or Ferrier, or Welch—is worth more than the opinions of all the

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average respectable practitioners, "of fifteen years' experience," in New York or Massachusetts. To attempt to settle such a scientific question by merely counting noses is trivial. Unfortunately, it is not without precedent that members of the medical profession have opposed scientific progress. The use of anesthesia in obstetrics was opposed, and its introduction delayed, by eminent professors in Philadelphia, one of whom gravely argued that it would defeat the scriptural plan, according to which women should bear children in agony. Even to-day physicians are found who deny the very existence of hydrophobia or the infectiousness of tubercle.

As for our friends, the clergy, although on the whole they have given some very sensible answers, it is not to them as a body that we look for light to illumine the pathway of science. And as for educators and writers, they are of all known species and varieties. What particular varieties of them were appealed to by the Humane Committee, and how much they know about the needs of modern scientific medicine, in no way appears.

It may be worth while to note, however, that the answers obtained by the Committee were on the whole favorable to vivisection under certain conditions and restrictions. While we do not attach much importance to these results, it is but fair to say that in the main they exhibit a degree of enlightenment that is encouraging to scientists and must be discouraging to the antivivisectionists. The vast majority of the replies are against the total abolition of this necessary adjunct to science.

We should note also that Dr. Leffingwell himself disclaims that he is an antivivisectionist. His methods and spirit, however, are such that we doubt not that the antivivisectionists will have no difficulty in recognizing him as one of their own.

The futility of an appeal to public opinion for the settlement of such a strictly scientific subject is clearly shown in the replies obtained by the Humane Committee. The majority of these replies are in favor of "vivisection when restricted by utility" and "vivisection when without pain." These expressions are in fact euphemistic. They are well-intended, no doubt, and indicate a disposition in those who use them to be liberal-minded; but practically they offer no solution for the difficulties and objectionable features of vivisection. The utility of an experiment can be determined alone by the investigator and by critics trained in his own special field—not by clergymen, writers, and educators, or even by the average physician. Vivisection without pain is, we fear, an ideal far yet from attainment. It is folly for scientists to claim that it is yet practicable in all cases. Such a claim puts them in a false position, of which their opponents take immediate advantage, as shown in Dr. Leffingwell's paper. It raises a standard to which the scientist cannot attain, but by which agitators and fanatics will aim to control him. It is better to acknowledge that vivisection means pain in many instances, and to claim that the degree of this must be left to the humanity and skill of the operator. It cannot be measured out by public opinion. The question of the right to inflict pain is included in the larger ethical question of the right to take animal life.

The impractical note in the report of the committee comes out still more clearly in its recommendation that this humane association by its local societies should demand the right to enter every laboratory and witness the experiments in vivisection. The main objection to this is not in the inconvenience to and interference with scientific workers that it entails, but in the recognition of the right of irresponsible persons, without special training or fitness, most of whom have already imbibed and even expressed a prejudice against vivisection, assuming to themselves inquisitorial duties, and arrogating to themselves the privilege of sitting in judgment for the public benefit upon the thing which they have already condemned. We do not presume to speak for all the experimental scientists of this country, but, if they shall agree to this proposition, we can only say that they will exhibit a degree of kindness and amiability that would fit them pre-eminently for the trying work of vivisection. The best work even in our hospitals could not endure such a test of ignorance without grave risk of misrepresentation and defeat.

The true ethical question that is involved in vivisection is practically ignored in the paper and report from Minneapolis. It has been stated so often that it can gain nothing from being stated again, and yet in this connection it can never be stated too frequently. We observe, by the way, a rather uniform reticence on this question by those who oppose vivisection. They either ignore it as beneath them or they studiously avoid it as too far above them, we know not which. This question, in brief, is that of the right of mankind, who claim and constantly exercise the right to chase, trap, catch, maim, and slaughter all forms of animal life

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for sport, for food, for clothing, or for avoiding nuisances; also to use animal life for the demonstration of scientific truths. We are content here, without discussion, to state merely our belief that the one right is inseparable from the other.

Of the immense importance, nay absolute necessity, of vivisection for the progress of medical science there can be no question. Obstructionists, who, like Dr. Leffingwell, minimize the results obtained (as in the treatment of tetanus), present a mental attitude which is simply fatal to all progress. Such obstructionists have stood to oppose every inch of progress, not only in the scientific but in the political and religious world. For them one objection is magnified so as to obstruct their mental horizon in all directions. They are mentally and morally myopic.

The position assumed by this journal has always been in favor of proper legal restrictions upon the practice of vivisection. We doubt, for instance, its utility, or its desirability, for general didactic purposes. We are content, however, to leave the control of this question, in all its difficult details, to the proper law-making powers, guided by the advice and experience of experts who are qualified to state and to demonstrate the needs of their respective specialties. We do not believe that it can or should be settled by popular agitation or by an appeal to "clergymen, educators, and writers," or even to a general vote of the medical profession; although of the result of the last there can be no doubt.

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### A QUESTION OF CONSCIENCE.

DR. ARABELLA KENEALY, a woman-doctor—or, more accurately, a female physician—has popped a question of conscience into the masculine ear of the British practitioner which has stirred up quite a lot of the moral instincts for which the insular branch of the Anglo-Saxon race is noted. This question is a syphilitic one—or, to be more elegant, it is a question pertaining to syphilis. Dr. Kenealy shows plainly that she thinks that she is well grounded in the gospel of syphilis; and her child-like faith in the prevalent doctrines of the syphilographers is much better schooled than is her moral sense as a plain British subject. It seems that this question took its rise in a crisis in Dr. Kenealy's professional life which was about as follows:

The doctor was called to see "the wreck of a young woman" who was threatened with an abortion. The threatened abortion was, or would be, the sixth. Only one child had been born living to the patient, and this child was "typical," *i. e.*, syphilitic. The doctor, retiring to the library to write a prescription for a mercurial that was sagely intended to check the abortion, encountered this unhealthy child in an interview which was almost as long as a column of the *British Medical Journal*, in which the adventure is told. So impressed was she with the undesirability of adding another such child to that household that she rashly tore up her prescription and decided, not in this exact language, but yet literally, to let Nature rip. Dr. Kenealy's acquaintance with Nature in all her moods—especially her destructive mood toward all things syphilitic—is not the least remarkable of her accomplishments. "Nature," for Dr. Kenealy, is a distinct personality, aflame with a divine wrath against syphilis and syphilographers and syphilotherapeutists—Nature, she says, "is abhorrent of syphilis, and, in a spasm of anger, thrusts the abhorred thing from out of its mother's womb." Hence for Dr. Kenealy to give mercury in order to abort an abortion, and to save a small life "from rushing headlong into a sphere for which it was not yet equipped," was unnatural, sophistic, and diabolic. Acting, therefore, on this cue from Nature, Dr. Kenealy, apparently without even taking farewell of her patient, left the library and went home thinking.

The subsequent history of the patient and her embryo is not given; but Dr. Kenealy, like every true Briton who has a grievance, or else because her conscience did not preserve its equilibrium, rushed into print to invoke the aid of her older colleagues in solving this "problem of intricate differentiation." One would think that the proper place to solve this problem would have been at the patient's bedside instead of in the columns of our esteemed contemporary; but leaving this thought aside, especially as we have not had an opportunity to reach the patient's bedside, and would probably now be too late, let us enter briefly into consultation even at this inconvenient time and distance.

First, let us note and commend Dr. Kenealy's optimism in obstetrics. Her patient was in such a risky condition from a threatened abortion that she had been obliged to have the "foot of her bed raised" and to sip "iced lemon-water." These heroic remedies (which apparently are more serviceable in Britain than they are in America) were supplemented by Dr. Kenealy in ways not men-

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tioned; neither are the patient's symptoms described. Nevertheless, the danger being temporarily averted, the doctor turned confidently to mercury as a reliable remedy to complete the cure—to clinch the embryo, as it were, anew. This is a power that we confess we did not know that mercury has. When the embryo, already four months developed, is almost thrown off, and the mother, with the foot of her bed elevated, has to sip iced lemon-water, we should not have supposed that mercury, even in the hands of a syphilographer, would have the power or the time so to renovate embryonal and placental tissue as to render a further mishap impossible. It seems to us that Dr. Kenealy has given herself useless concern about this matter. Her casuistry is as far astray as her therapeutics. If mercury has not the power that Dr. Kenealy attributes to it, we should say that her conscience has bled in vain.

But the question raised by Dr. Kenealy is one of casuistry, not of therapeutics. The doctor had, according to her own innocent belief, an infallible remedy in mercury against a half-finished abortion. There was no doubt about that. She wrote the prescription for it in the library. The question for her simply was, Should she use this infallible remedy? Dr. Kenealy decided not—and there she made a fatal error which neither her candor nor her rhetoric can condone. In the midst of all her confusion of thought as to the action of mercury, the pathology of embryonal syphilis, the causation of Mongolian idiocy, the importance of iced lemon-water in abortion, and the personal likes and dislikes of her tutelary goddess "Nature;" in the midst of all these there stands out clearly the glaring sin of omission of which Dr. Kenealy was guilty. For we hold it to be an axiom of medical ethics that the physician ought never to withhold a remedy, unless for the patient's good. It is not for him, or her, to judge the mystery that lies in the untold future; to cast a horoscope for the unborn infant and to condemn it to infamy under the sign of Mercury!

For, we ask, what guarantee had Dr. Kenealy that this particular infant could not be saved and made healthy and useful? What were the wishes of this embryo's parents on the subject? They were not even asked. The father, in fact, does not appear on the scene. It was probably lucky for him that he did not meet Dr. Kenealy. Have no syphilitic children ever survived and flourished? In fact, what evidence had the doctor that this child *was* syphilitic? She gives but little. A succession of abortions is not a sufficient evidence of syphilis to justify a physician in snapping his fingers at a poor imperilled embryo and bidding it go the way of its predecessors. If Dr. Kenealy's logic is followed to its just conclusion, the penalty for all syphilis will soon be death—and not confined to the embryo. Dr. Kenealy will not only expose suspected children on the mountain-tops, but she will be exterminating their fathers and mothers in the market-places, if she is not checked.

With reference to Mongolian idiocy also Dr. Kenealy has rather bold and original ideas. She tells us that the effect of syphilis is to retard evolution in such a way that from Caucasian parents an offspring characteristically Mongolian results. We did not know before that Mongolian idiocy was subject to such a sweeping elucidation. In this exceedingly rare type of idiocy the "Mongolian" feature is but a superficial resemblance; the child is still a Caucasian, not a "maimed Mongolian." And to what extent this type is due to syphilis is still, as in the case of all idiocy, a somewhat obscure question.

We fear that Dr. Kenealy may find the practice of obstetrics too much involved in casuistry to permit her to become a good midwife, and we suggest that she try some other branch of medical science—for instance, pathology.

## EDITORIAL COMMENTS.

***Phonography in Medicine.***—We have on several occasions referred to the utility to medical men of a knowledge of phonography and its practical application to the exigencies of a busy and active existence. Many of these points, and others as well, are brought out clearly and forcibly in an interesting address recently delivered by the distinguished neurologist, Dr. W. R. Gowers, before the Society of Medical Phonographers, and reprinted in the *British Medical Journal* of October 5, 1895. The Society was organized in December, 1894, with a membership of 60, which by September, 1895, had increased to 175, and it issues a monthly journal containing in shorthand reports of clinical lectures, original articles, and the like. In the course of his address Dr. Gowers pointed out that the current method of writing is not only cumbersome but laborious. Every movement of speech requires for its representation several different movements of the hand. Writing can be made easy and simple by having the movements of the hand that symbolize each movement of speech and its resulting sound the fewest compatible with secure and ready perception by the eye. This is the fundamental basis of shorthand. Written records form an important factor in medical

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advance, and much time can be saved, much expenditure of energy spared, and fuller as well as more careful observation made possible by the adoption of means that simplify this process and render its execution easier. The use of shorthand is not restricted to the making of records, but it may be applied to all the purposes for which ordinary writing is employed. Especially useful to the student is the art of phonography. By this means he can make a perfect epitome of his lectures, and at the same time keep his mind engaged upon the subject in hand. It were best if the knowledge of shorthand were acquired before entrance upon the medical education, and Dr. Gowers proposes that shorthand should be an extra mark-bearing subject in the preliminary examinations. He does not believe that the practice of making shorthand-notes has a deleterious influence upon the faculty of memory, but holds rather that, properly used, shorthand involves the retention of a greater amount of knowledge by the memory.

***A Hahnemann Statue.***—An esteemed contemporary remarks that "Germany has never ventured to erect a statue to Hahnemann." Literally speaking this is true, yet there is in Germany a statue to the man who discovered "the inner, monstrous, chronic miasm—psora, the only true fundamental cause and producer of innumerable diseases which figure under the names of hysteria, rachitis, scoliosis, cancer, jaundice, amenorrhea, hemoptysis, asthma, impotence, migraine, deafness, cataract, etc." (*Organon der Heilkunst*, Section 80. This work, be it remembered, is still used as a text-book in homeopathic medical schools.) Our contemporary has evidently never encountered in his wanderings abroad, a life-size, bronze statue "to the memory of Samuel Hahnemann." It is placed in an inconspicuous corner in Leipsic and is considered a good representation of the great potentizer. With reference to the position of the figure a Viennese wit propounded a rather neat conundrum: "Warum sitzt Hahnemann?" Answer: "Weil er für die Homeopathie nicht stehen kann."

As to the success of the Hahnemannians in raising money for their statue in America, there is one aspect of the matter not sufficiently emphasized. Both the monument and the money-raising are made a standing advertisement. The honor or principle involved is purely figurative or assumed.

***Medical Education.***—The following certificate was sent a railway company by a legally qualified physician:

July 31, 1895.

Owing to the request of the —— Company I hereby certify, that I found Mr. —— several years ago in a dying condition in the office, suffering from an ulcer and chronic catarrh of the stomach. Since that time I attended Mr. —— for catarrh of the stomach, the bowels and the liver, and rheumatism of the joints. Last October the blood was so bad that he lost his memory, and his sight was so impaired that he saw everything on 2 different places; this condition of the brain ceased as soon as I cured his kidney-trouble! These diseases are not due to alcoholic use, he did not drink liquors in all the time I attended him, as this caused a rushing of blood to the brain.

***Epistaxis through the Eyes.***—Dr. M. A. Veeder, of Lyons, N. Y., writes that he has lately had a case of epistaxis in which, as soon as the lower part of the nostrils had been plugged by the aid of cotton and astringents, the blood found its way into both eyes by the lacrimal ducts and continued to flow quite profusely for nearly half an hour, trickling down over both cheeks in quite a stream at times. Have similar cases been met in practice?

***Zoolatry*** is a new word coined by an English Jesuit professor to describe the attitude of certain antivivisectionists, and "which," in the opinion of the *British Medical Journal*, "exactly expresses the state of mind of the antivivisection fanatic, who makes the feelings of animals the object of a tender regard which he is far from showing for those of men."

## NEWS ITEMS.

***The Revival of the Index Medicus.***—The following additional subscribers are announced by the Philadelphia Committee for the revival of the *Index Medicus*:

Dr. William S. Halsted, Baltimore.
Medical Exchange Club, Chicago.
Dr. John E. Owens, Chicago.
Dr. O. L. Schmidt, Chicago.
Dr. F. Forchheimer, Cincinnati.
Cleveland Medical Society.
Sir T. Grainger Stewart, Edinburgh.
Free Public Library, Newark, N. J.
Philadelphia Neurological Society.
Dr. Lewis S. Somers, Philadelphia.
Reynolds Library, Rochester.
Dr. S. C. Busey, Washington, D. C.

***Alvarenga Prize of the College of Physicians of Philadelphia.***—The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Señor Alvarenga, and amounting to about one-hundred-and-eighty dollars, will be made on July 14, 1896, provided that an essay deemed by the Committee of Award to be worthy of the prize shall have been offered.

Essays intended for competition may be upon any subject in medicine, but must not have been published, and must be received by Dr. Charles W. Dulles, the Secretary of the College, on or before May 1, 1896.

Each essay must be sent without signature, but must be plainly marked with a motto, and be accompanied by a sealed envelop having on its outside the motto of the paper and within it the name and address of the author.

It is a condition of the competition that the successful essay or a copy of it shall remain in possession of the College; other essays will be returned upon application within three months after the award.

***Dr. Francis Peyre Porcher, LL.D.***, a well-known physician and botanist, died at Charleston, S. C., on November 19th. He was at one time Professor of Materia Medica and Therapeutics in the South Carolina Medical College, and was the author of *Resources of the Southern Fields and Forests, Medical, Economical, and Agricultural.*

***Dr. J. Abbott Cantrell*** has been appointed Dermatologist to the Frederick Douglass Memorial Hospital.

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# THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

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## ORIGINAL ARTICLES.

### THE HEART IN ANEMIA.[1]

BY DELANCEY ROCHESTER, M.D.,
OF BUFFALO, N.Y.,
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I HAVE chosen as my subject the heart in anemia, because I believe that not infrequently through the mismanagement of anemic cases organic deformity of the heart occurs, and, on the other hand, that sometimes the presence of an anemic bruit has given rise to a diagnosis of organic deformity and consequent false prognosis.

Let us consider briefly the symptoms of anemia referable to the heart, the signs to be found by physical examination, the condition of the heart as revealed by autopsy in cases of pernicious anemia and in some of the severe secondary anemias, and let us then see if we can fit the two together in such a way as to obtain a rational explanation of the symptoms and signs, and to formulate methods of treatment suitable to the conditions revealed by careful study of the case.

The symptoms of anemia referable to the heart may be said to be shortness of breath, palpitation and pain in the precordial region upon physical exertion or emotional excitement of any sort. All of these symptoms may be present in a given case, singly or together, at different periods in its history. When we make a physical examination of an anemic patient we generally note upon inspection a marked pulsation in the epigastrium and precordium, often *more* marked in the epigastrium; the apex-beat is generally in its normal position, or occasionally a little below and to the left; percussion gives a normal area of cardiac dulness or one slightly increased transversely; auscultation reveals a forceful beat of the apex against the chest-wall, a first sound short in duration and lacking the normal booming quality, accompanied by a loud, soft, blowing murmur; sometimes there is no first sound at all, its place being entirely taken by the murmur; the second sound is sharp and valvular in quality, the pulmonary being considerably accentuated as compared to the aortic.

With the exception of Laennec, Guttman, and, in one case, Strümpell, all observers whose works I have been able to consult agree that the anemic heart-murmur is systolic in time, and the majority of these observers agree that it is basic in situation. According to different observers the point where this murmur is heard with greatest intensity is over the pulmonary orifice, *i. e.*, in the second left intercostal space close to the sternum, over the aortic orifice, *i. e.*, in the second right intercostal space close to the sternum, at the apex of the heart, in the tricuspid area; in fact, as Roberts says, it "has usually the position of a pulmonary systolic murmur—it may, however, be situated over the aorta or be heard at all the orifices."

Balfour, of Edinburgh, agrees with other observers that the anemic heart-murmur is systolic in time and basic in situation, but he places its point of greatest intensity, not over the aortic or pulmonary orifice, "but" (I quote from his book) "actually about one-inch-and-a-half or rather more to the left of the pulmonary area, and in the same plane immediately over the part where the appendix of the left auricle pops up from behind just to the left of the pulmonary artery."

Another clinical observation, originally made by Hanford, I believe, is worthy of note, namely, that in the large majority of cases, in which the murmur is basic in situation, its intensity is much greater when the patient lies flat on the back than in the upright position; indeed, in some cases the murmur is audible only when the patient lies down, disappearing entirely when the upright position is again assumed.

So much for the symptoms and signs of anemia that may be referred directly to the heart as their source. Let us now turn our attention to the morbid anatomy of the heart in such cases. False conclusions are liable to be drawn from too small a number of observations, and therefore, as I have seen but one autopsy in a case of pernicious anemia, and that not in my own practice, my personal experience is of no value in the matter. In this case, however, there was fatty degeneration of the myocardium with dilatation of the left ventricle.

In his masterly article on diseases of the blood in the *American Textbook of the Theory and Practice of Medicine*, Osler says, in regard to the morbid anatomy of the heart in leukemia, "the serous membranes (pericardial and endocardial) not infrequently present ecchymoses, and leukemic growths may ex-

[1] Read by title at the meeting of the New York State Medical Association, October 16, 1895.

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ist there as well as on the peritoneum. The cavities of the heart are, as a rule, dilated and the myocardium soft; if the papillary muscles be teased out a moderate grade of fatty change is evident."

The changes in the heart in progressive pernicious anemia are stated by the same author as follows: "The heart-muscle is very pale, light yellow in color, and shows in fresh teased preparations the most intense fatty degeneration. The walls of the ventricles are remarkably lax and flaccid and the cavities contain light-colored blood."

In regard to the morbid anatomy of chlorosis the same author says: "Few cases die directly from the disease and the pathologic findings in those which have come to autopsy have been by no means constant. Rokitansky in 1846 pointed out certain instances of incurable chlorosis due to anomalies of the bloodvessels and genital organs. Virchow described a congenital hypoplasia of the vascular system found in several autopsies on chlorotic patients. The aorta and all its branches were of small caliber and thinner than normal; the elasticity of the vessels, however, appeared to be increased. The heart is at times dilated and the left ventricle hypertrophied." I will not quote others, as they all agree essentially and the quotations given represent the latest and best observations on the subject.

To sum up, we may say that we have in the heart, according to the degree and character of the anemia, the following morbid conditions present: Laxness and flaccidity of the myocardium with some dilatation of the cavities and some hypertrophy of the left ventricle, fatty degeneration varying from a mild degree of degeneration of some of the fibers of the musculæ papillares to the severe grade of degeneration seen in progressive pernicious anemia.

The shortness of breath, the palpitation, the pain, the increased area of cardiac dulness, and the murmurs are the symptoms and signs that it behooves us to explain from our pathologic findings. The first four are easy of explanation and there is essentially no difference of opinion among observers in regard to them. The shortness of breath and the palpitation are both due to the effort on the part of nature to supply sufficient oxygen to the organism by increasing the rapidity of the stream which is so poor in the oxygen-carrier, hemoglobin; the pain is probably the cry of starved nerves for more or better food; the slight increase in area of cardiac dulness observed in some cases is undoubtedly due to the mild degree of dilatation and hypertrophy that has been observed.

The most interesting point, and the one about which there is more difference of opinion among competent observers, is the mode of production—the mechanism—of the anemic murmurs. When fluid is driven with a certain amount of velocity through a constricted opening into a larger space beyond, a sound is produced that has been shown by careful experiments to depend upon the vibrations of what have been termed fluid veins, produced at a greater or less distance from the orifice according to its size and the velocity with which the fluid is propelled. In the case of heart-murmurs dependent upon organic lesions of the valves—whether the murmur is direct or regurgitant—the sound is produced in this way, the blood being propelled with a certain velocity through a constricted opening into a larger space beyond. The sonorous vibrations of these fluid veins are transmitted to the surrounding blood, to the walls of the containing vessel, and thence, through whatever medium may intervene, to the ear of the listener. This is beyond doubt the true explanation of the mechanism of heart-murmurs dependent upon valvular diseases.

We have seen that by different competent observers the cardiac murmurs of anemia have been located at the aortic, the pulmonary, the mitral, and the tricuspid areas, and in the area described by Balfour in the second left intercostal space to the left of the pulmonary area. For the most part these murmurs have been systolic in time, though a few diastolic murmurs have been described. Is there any rational manner in which we can explain the production of these murmurs which will satisfy all these observations, for we obviously have no right to doubt the diagnostic power of any observer unless we have proof of the inaccuracy of his observations.

First, then, how is this murmur produced at the aortic orifice? In a healthy individual by the ventricular systole a certain amount of blood of a definite weight is driven with definite velocity against the semilunar valves, pressing them flat against the walls of the artery. Evidently if the weight of the blood is reduced below a certain limit, though the velocity remains the same or even be slightly increased, the semilunar valves will hang out into the lumen of the vessel and thus produce a constricted opening with a larger space—the cavity of the artery, beyond—all that is needed to produce the fluid veins of Savant and the consequent sonorous vibrations resulting in the murmur. A similar line of reasoning would apply to the production of the murmur at the pulmonary orifice. Before leaving the base of the heart we have the observation of Hanford, which has been confirmed by us all, that in a certain number of cases the basic murmur is increased in intensity when the patient lies down. Hanford's own explanation is that when the patient lies down, owing to the lax and flabby condition of its walls, the whole heart *falls upward* and presses upon the larger vessels, thus producing a constriction and the necessary mechanic condition for the

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production of a murmur; that when the patient assumes the upright position the heart *drops down* again and the murmur disappears, or only so much remains as may be due to the obstruction produced by the hanging out of the valves as I have suggested. Personally I am not quite satisfied with this explanation of Hanford's, but I have not as yet anything more rational to offer in its place.

Now how about the murmurs heard at the mitral and tricuspid areas? As they are systolic in time, they must be regurgitant in character.

We have learned that in the morbid anatomy of anemia there is a lax and flaccid condition of the muscular fibers and often some fatty degeneration; that when there is fatty degeneration, it is more marked in the musculæ papillares to which the chordæ tendineæ are attached, and is not infrequently limited to those structures. We have found that with this laxness and flaccidity of the walls there is developed a certain amount of dilatation of the cavities, producing a dilatation of the auriculoventricular orifices and a consequent insufficiency of the valves, resulting in regurgitation. This is the explanation given by Dr. Balfour of the mitral regurgitation observed by him. This would require a considerable dilatation of the ventricle, more than we have any right to premise from the size of the heart as shown by percussion. Another and, to me, more rational method of explaining this regurgitation—one long ago brought forward by Walshe, of Dublin—is through the fatty degeneration and consequent weakening of the musculæ papillares to such an extent as to allow the auriculoventricular valves to yield to the pressure of the blood during the ventricular systole and permit the regurgitation to take place. As for the murmur heard in the area described by Balfour we must remember that he says it is "about one-inch-and-a-half or rather more to the left of the pulmonary area and in the same plane immediately over the part where the appendix of the left auricle pops up from behind just to the left of the pulmonary artery." It is a well-known fact that sometimes a mitral regurgitant murmur is heard with greatest distinctness at this point, the sound being conducted better "along the course of the regurgitating blood, the fluid veins producing sonorous vibrations louder at the point of impingement than at that of origin." From these observations he concludes that the heart-murmur of anemia is one of mitral regurgitation. We have just shown how mitral regurgitation may occur in anemia, and thus the murmur heard in Balfour's area is accounted for.

In those rare cases, such as Strümpell's case of pernicious anemia, in which a diastolic murmur occurs, the dilatation of the ventricle has probably proceeded so far as to dilate the aortic orifice and so allow regurgitation to take place at that point.

Thus, we see, we have a rational explanation of the mode of production of anemic heart-murmurs which is applicable to all cases, and is none other than that which holds in the case of organic murmurs, namely: An obstruction to the onflow of the blood, causing at one point a narrowing of the lumen of the vessel through which it passes, thus producing the fluid veins already referred to.

The arterial murmur heard in the carotids in a certain number of cases is synchronous with the cardiac systole, and is, in my opinion, merely a transmission along the current of blood of the cardiac murmur arising at the aortic orifice. The venous murmur, however, is a continuous humming sound, and so cannot be referred for its origin to the cardiac murmur, which is necessarily intermittent, as it occurs only with the systole. It must, therefore, originate in the vein itself, and here we find a cause for it. The external jugular vein is attached to the clavicle, the lower part of the vein being thus kept constantly extended, and not permitted to collapse down upon the blood; just above this somewhat enlarged chamber of the vein is a pair of valves; owing to the relaxed condition of the walls of the vein found in anemic individuals and the lack of weight of the blood necessary to keep them in place, it is highly probable that these valves hang out into the lumen of the vessel and produce the necessary obstruction for the formation of the fluid veins of Savant and their sonorous vibration. The continuousness of the sound is probably due to the fact that the velocity of the blood-current is much more constant, though not so great as in the arteries.

To sum up, we have the following facts before us: First, that when fluid is forced at a certain velocity through a constricted opening into a larger space beyond, at a certain distance from the orifice, its particles are thrown into sonorous vibration; second, that in certain diseased states of the cardiac valves, we have beyond a doubt the necessary conditions for the production of such sound, and the presence of the sound; third, that when there is no such diseased state of the valves, but when, from the impoverished state of the blood and certain changes in the myocardium, we should expect the healthy valves to be placed in such a position as to produce the constriction mentioned, we find the murmur, the indication that such constriction exists, present; therefore, I think we are justified in concluding that the valves are in that position, especially as the murmur can be satisfactorily accounted for in no other manner.

What practical conclusions as to the management of our cases can we draw from the facts before us? I think we are justified in the following: If the murmur is heard only at the aortic or pulmonary

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orifice and is systolic in time, it is probable that the condition of the blood is the chief factor in its production and that the cardiac muscle is still in fair shape; if, however, the pulmonary second sound is considerably accentuated as compared to the aortic, there is probably already some change produced in the myocardium of a degenerative character; if the murmur is heard with greatest intensity at the apex, or in Balfour's area, or over the tricuspid valve, there is already present marked change in the myocardium; if there is a diastolic murmur the condition is most serious. The relative strength of the aortic and pulmonary second sounds is a pretty fair index of the strength of the heart; the more the pulmonary is accentuated the weaker is the heart.

The treatment of anemia may be summed up briefly as follows: Keeping the bowels, skin, and kidneys active; a careful supervision of the diet; regularity in eating; the internal administration of iron and arsenic in varying proportions according to the relative proportion in the blood of the hemoglobin and the red corpuscles; the inhalation of pure oxygen-gas; exercise, passive or active, according to the condition of the heart; the administration of the tincture of nux vomica in increasing doses to strengthen the cardiac action.

I think that we are all agreed that exercise is important for anemic individuals, but I think it of the utmost importance that the condition of the heart should be the index to the character and amount of exercise. The heart in an anemic individual is just in the condition in which too great or too prolonged exercise may cause a dilatation that will produce a permanent mitral insufficiency or possibly a worse condition. Therefore, in those cases in which the physical examination shows aortic or tricuspid regurgitation, and in most of those in which mitral regurgitation is revealed, rest in bed for a more or less prolonged period, according to the effect produced, is indicated. The necessary exercise should be supplied by massage and muscular movements given by one thoroughly competent.

The slow, deep inhalation of pure oxygen-gas is of the utmost importance in these cases in that it supplies the oxygen and conduces to full expansion of the lungs, thus improving the circulation and increasing the strength of the cardiac action. The administration of tincture of nux vomica in gradually increasing doses is of great value in increasing the vigor of the myocardium.

The chief point I wish to urge is the careful examination of the heart in all cases of anemia, the ocation of the origin of the cardiac murmur or murmurs that may be present, and the regulation of the character and amount of exercise according to the findings of the physical examination.

## RECENT EXPERIENCES IN THE SURGERY OF THE HYPERTROPHIED PROSTATE.

BY J. WILLIAM WHITE, M.D.,
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(Concluded from page 598).

CASE VI.—Dr. H. G. Wetherill, of Trenton, N. J., has been kind enough to send me the following facts as to a case operated upon June 13, 1895: The man was 73 years of age and had depended upon the use of the catheter for a year. He had an enormous prostate, measuring 3½ by 2½ in. He was able to pass about three ounces of urine in 24 hours, and was drawing 60 ounces by the catheter. Thirty-six hours after double castration he passed three ounces of urine at one effort and about 12 ounces on the second day after the operation. On the twelfth day he passed 10 ounces of urine freely and without pain on rising in the morning. The catheter was then introduced and the bladder was found to be practically empty. Both of the testes were cystic and there was a hydrocele on either side. The patient was delighted with the result of the operation.

CASE VII.—I am indebted to Dr. B. M. Ricketts, of Cincinnati, Ohio, for the following report: One month ago I performed double castration upon a patient aged 79 years. The operation was done with cocain-anesthesia, 1 gr. being used, and occupied seven minutes. The patient passed about 6 ounces of pus daily for one week previous to the operation, at which time the average period between the successive acts of micturition was twenty-two minutes. At the time of the report the pus had disappeared; the patient urinated about once every hour; the general health had also improved.

CASE VIII.—Dr. J. C. Reeves, Jr., of Dayton, Ohio, has very kindly sent me the following report: A man, aged 72 years, had had a high grade of diabetes for some years, difficulty in passing water for over four years, and was entirely dependent upon the use of the catheter for four months, during which time urine was passed from every half-hour to two hours, the act being accompanied by considerable distress; the urine was clear. By rectal examination the prostate seemed to reach almost to the sides of the pelvis. Double castration was performed under cocain-anesthesia, without giving the patient any pain. The only systemic effect of the drug that was noticed was slight talkativeness. The patient passed from observation, but at the end of ten weeks it was reported that he was still obliged to use the catheter two or three times a day, although a portion of the urine was passed without it. On the day of this report (July 21, 1895) half a pint was passed voluntarily at one effort. The patient's general condition is improving.

CASE IX was operated upon by Dr. A. H. Levings, of Milwaukee, and is reported in THE MEDICAL NEWS, August 17, 1895. J. B., aged 77 years, was obliged to resort to the use of the catheter eighteen years ago on account of an enlarged prostate. For thirteen years he was entirely dependent upon this instrument. Five years ago, as instrumentation be-

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came almost impossible, a suprapubic cystotomy was performed and an artificial urethra established.

The condition seemed satisfactory for three or four years, when he began to complain of pain. The cystitis grew worse, and repeated rectal examination established the fact that the prostate was constantly increasing in size, until the time of the operation, when it was as large as a cocoanut. Castration was performed May 14, 1895. On June 20th, 36 days later, the patient passed a small stream of urine, the first time for 18 years. He has continued to do this every day; the size of the stream is increasing, and for the week preceding the report he has used the suprapubic opening night and morning only when the bladder was irrigated. The prostate had diminished in size about one-half, the cystitis was much improved and the severe pains had practically disappeared.

CASE X was operated on by Dr. A. H. Levings. The man was 51 years old, and had been dependent upon the use of the catheter since December, 1894. About the middle of December the right testicle became inflamed and suppurated; two weeks later the left one became similarly affected. Upon entering the hospital there were two ounces of residual urine, which was ammoniacal and contained a considerable quantity of pus; both lobes of the prostate were very decidedly enlarged. The disease of the testicles was thought to be tuberculous. Both were removed with the view of reducing the size of the prostate. Two weeks after the operation the patient was walking about the hospital almost wholly free from pain; the urine had become acid and almost clear, the catheter was no longer necessary, and the residual urine had entirely disappeared. At the end of 25 days the left prostatic lobe was scarcely to be felt, while the right was much reduced in size. The patient was discharged in excellent condition.

CASE XI was operated upon by Dr. H. O. Walker, of Detroit. The patient was 65 years of age; he had had symptoms of prostatic obstruction for eight years, namely, frequent micturition, frequent use of the catheter, a large amount of residual urine loaded with pus. Rectal examination revealed a very much enlarged prostate. As the man had run the gauntlet of treatment by catheterization, irrigation, and medication without benefit, both testicles were removed on February 10, 1895. He was shown to the class in two weeks, at which time he was able to retain his urine for from four to nine hours; the catheter was discarded after the ninth day. The pain had all disappeared and there was but little pus in the urine. The patient was able to pass urine without much effort, and the prostate had appreciably diminished in size.

CASES XII to XIX, inclusive.—The *British Medical Journal* of August 17, 1895, contains an abstract of a paper by Kummell, in the *Berliner Klinik* of August, 1895, in which 8 cases are reported upon which the operation of castration had been performed by the author on account of prostatic hypertrophy. The operation was followed by considerable relief in all the cases. One patient, aged 77, died from exhaustion four weeks after the the operation. In two cases the function of the bladder was restored in spite of considerable weakness of the detrusor. In the author's opinion the treatment of hypertrophy of the prostate by double castration compares favorably with other operative measures in being simpler in performance and less dangerous.

CASE XX.—The following case is reported by R. Church in the *New Zealand Medical Journal* for July, 1895: The man, aged 62, consulted the author 18 months before the present report, on account of great pain and difficulty in passing urine. He stated that he had been treated previously for this trouble. The symptoms commenced 7 years before, and had gradually increased in severity, until at the present time "life was a misery to him." For a few years back he had occasionally used the catheter, but of late he had been unable to pass it without excruciating pain and sometimes hemorrhage. There was a slight cystitis; the prostate was greatly enlarged. Washing out of the bladder and careful use of a coudée catheter improved the condition for a time. The patient's condition on February 11th was described as one of agony. He had lost all appetite and had decreased in weight 2 stone 7 lbs. Sleep came only in snatches. The pain was so intolerable that he resorted to chlorodyne, taking 40 drops at a time. Double castration was performed February 18th. At the end of the first week the gland was appreciably smaller as measured by the catheter and by rectal touch. The pain was but trifling; the patient was at times able to urinate without the catheter. At the end of the second week the prostate was one-third smaller, with still further improvement of the symptoms. At the end of the third week it was reduced to one-half of its former size, the symptoms still improving. March 18th the gland was only slightly larger than normal. The patient was able to sleep about four hours at a time during the night; appetite was restored; the weight was increased; there was practically no pain, but still some slight atony of the bladder, necessitating the occasional use of a catheter, which could be passed, however, without pain. Instead of brooding over his trouble he interests himself in his business affairs. Mentally and physically he is a better man. The author states that to all intents and purposes the patient is cured.

CASE XXI.—In a discussion upon the treatment of prostatic hypertrophy before the Massachusetts Medical Society, June 11, 1895,[1] Dr. L. Bolton Bangs, of New York City, referred to a case which he was asked to see in consultation. The patient was 64 years of age and had all the evidences of prostatic obstruction. He was straining in a most agonizing manner to expel a few drams of purulent urine every two hours. He had a cachectic appearance and an overdistended bladder. Dr. Bangs was asked if the case was a proper one for castration. He replied in the negative, because the patient's kidneys were evidently affected. Nevertheless, castration was performed, the patient dying a week later.

CASE XXII.—In the same discussion Dr. Edward L. Keyes mentioned the case of a man, aged 65

[1] Boston Medical and Surgical Journal, August 2, 1895.

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years, apparently in good health. Many years before he had had a suppurating testicle. The speaker had also seen the patient a number of times at long intervals with slight attacks of recurrent prostatic suppuration, with a mild catarrhal cystitis, causing vesical spasm, but never laying him up. He came back in another of these attacks, when he said he was rather tired of them, and asked to have the testicles removed. Dr. Keyes was anxious to adopt other methods of treatment, and if possible relieve the catarrhal disturbance before operation. Being overpersuaded by the patient, however, he finally yielded, and removed both testes under cocain-anesthesia. The symptoms increased gradually, and it was advised that the bladder be drained. The patient and family objected, however, and the patient died in the fifth week after the operation. No autopsy was allowed. Examination before death failed to reveal either a stone, a tumor, or ulceration in the bladder. Nothing could be found but a moderately enlarged prostate and a moderate amount of catarrhal cystitis in the prostatic sinus.

CASE XXIII.—At the same meeting Dr. Abner Post, of Boston, described the case of a man, aged 76 years, who was under observation two weeks, during which time he was catheterized by an attendant five times in 24 hours, although he was constantly begging for the use of the catheter. His pain and discomfort were very great; he was a feeble old man, was confined to bed, and complained a great deal of his head. He kept informing the attendants that he should go crazy if he did not have relief from his bladder-trouble. Treatment in bed, with careful systematic catheterization and washing of the bladder, for his urine was purulent, failed to give him relief, and at the end of 16 days, in spite of a general febrile condition, Dr. Post performed the operation of castration, although without any great hopes of relief. At the end of three weeks the patient was able to pass as much as five ounces of urine at a time. Although there is still some residual urine, he has to be catheterized only once daily. His mental condition has changed wonderfully for the better.

CASE XXIV.—A second case reported by Dr. Post is the following: A man aged 59 years, with a prostate very much enlarged, and a distinct bar at the end of the bladder, was obliged to pass water every hour. He had six ounces of residual urine, and he asked to have the operation done. He was kept under observation for a fortnight when the operation was performed. The intervals of urination have increased from 2 to 3½ hours. There is something like one-half the former amount of residual urine, but a good deal of the pain and discomfort has disappeared. The prostate does not seem to have undergone much diminution in size.

CASE XXV.—Mr. H. W. M. Kendall reports (*British Medical Journal*, Sept. 28, 1895) the case of a man, aged 82, an old Hungarian, who had suffered for some years from retention of urine and cystitis, necessitating the almost incessant use of catheters. For six years past he had been unable to leave his cottage, and when admitted to hospital was in a miserable condition, getting no rest night or day from the pain and distress caused by the continual desire to micturate, the bladder being intolerant of urine about every 15 minutes. The urine was in a stinking condition, viscid, and ropy. Rectal examination showed an immensely enlarged prostate, the finger not being long enough to reach its boundaries. On April 18th, after a preliminary hypodermic injection of a quarter of a grain of morphin, the operation was performed under chloroform, as described in the *British Medical Journal* of January 5th, the testicles being removed through a median incision in the lower part of the scrotum. Immediate relief was obtained, the patient retaining his urine four hours, and passing it without pain.

One or two attacks of cystitis recurred, requiring irrigation of the bladder occasionally, and convalescence was retarded by an acute attack of hysteria. The man was discharged early in July, quite free from all his troubles, having gained rapidly in weight and strength, and, according to his own statement, as well as he was 30 years ago. He can now walk three or four miles and only complains of being always hungry. Before his discharge examination by the rectum showed that though the prostate had diminished considerably in size, it had by no means disappeared, as described in some previous cases.

CASE XXVI.—Dr. Thomas S. K. Morton, of Philadelphia, has been good enough to send me a report of the following case: M. W., aged 71 years, was admitted to the Pennsylvania Hospital August 25, 1895. There was given a history of increasing difficulty in micturition extending over a considerable time and culminating in total retention. Attempts by a physician to relieve the bladder failed of their purpose, but originated alarming hemorrhage. Subsequently the man was removed to the hospital. Upon admission it was found that he was still bleeding and had a greatly distended bladder. Ordinary instruments failed to pass the prostate, but finally a vertebrated catheter of large size gained admission and drew off the urine. Then it was proved by rectal examination that an enormously hypertrophied prostate existed. It was as large as an orange and exceedingly soft in consistency. The urine was black with decomposed blood, ammoniacal, and contained much pus and detritus. Hemorrhage ceased after catheterization, but recurred upon each subsequent introduction of the instrument. The difficulties attending the withdrawal of urine constantly increased until it became apparent that operative interference must be resorted to or the man would speedily perish. It was decided, if consent could be secured, to perform castration, and if this failed to do a cystotomy later. The experimental nature of the proposed operation having been explained, written consent of the patient and some of his relatives was secured. The testicles were removed August 28th. Although catheterization had to be continued, bleeding ceased almost immediately after the operation, and the urine began to clear up and become less decomposed. On August 30th the urine had become entirely clear of blood, pus, and odor, and two days later was and has since continued to be normal. On the second day after the operation the man began

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to pass a portion of his urine. This amount steadily increased until a week later the catheter was discontinued and there was no residual urine. Examination of the prostate by the rectum at this time demonstrated its reduction in size to that of a hen's egg and in consistency to that of the normal gland. The change was quite surprising. Following this the man passed through a period of partial incontinence which was ascribed to weakened sphincteric action. But this slowly improved, so that in three weeks from the time of the operation the action of the bladder was normal.

On October 28th the man was in excellent health and could not sufficiently express the extent of relief that the castration has afforded him. He urinated from four to six times a day, had no distress whatever, and passed normal urine. The prostate was much smaller than when examined two weeks after the operation, and has become very dense in structure, as well as perfectly insensitive. Owing to the patient repeatedly removing the dressings, both wounds suppurated, but no harm resulted.

CASE XXVII.—Dr. J. T. Stewart and Dr. Francis L. Haynes, of Los Angeles, have kindly sent me this memorandum of a case recently operated on: "This patient, aged 65, was suffering great agony on account of inability to pass urine. His prostate was enormously enlarged. During the past year the difficulty of voiding urine increased until for a month life had become a burden. After a consultation it was decided to castrate him, and the operation was performed. In a few days the pain subsided and he began to pass his urine easily. He left the hospital with his wounds healed a week from the day of operation. The case was examined by the leading surgeons of this city, and they are following the case with us. Now, one month later, he voids urine like a boy."

As to the permanence of the good effects thus produced, all the evidence that has reached me justifies the belief that serious relapses will be very rare or altogether unknown. Nothing of the kind has occurred in any of my own patients. I have seen some cases and heard of others in which there were days or weeks during which some of the symptoms (especially the vesical irritability) were worse than at previous periods. Occasionally the degree of relief experienced is so slight as to be disappointing. It must be understood that we do not yet know enough to select accurately and without a certain percentage of error the cases in which there is not a reasonable hope of improvement.

A further report of the case described by Bryson in the *New York Medical Journal* of April 27, 1895 (Case VI of my earlier table), appears in the same journal of August 3d, and illustrates this point. The article concludes as follows:

A man, aged 74 years, shows first evidences of beginning prostatism at the age of 56 years, which slowly increase during the succeeding 11 years until the tidal urine reaches 12 ounces, while the residual is 3 ounces (dilatation of the bladder from obstructive prostatic overgrowth). He rises thrice at night. In the following 6 years the residual urine increases to 6 ounces. The tidal diminishes to about 2½ ounces and the diurnal and nocturnal frequency increases to 18 and 6, respectively, with marked diminution of detrusor energy (evidences of increasing obstruction, with thickening and degeneration of the bladder-walls). Cystitis and a mild pyelonephritis develop. Two separate attempts to enter on catheter-life fail on account of increased irritation, difficulty in entering the bladder and aggravation of cystitis; dilatation of the heart and pulmonary emphysema supervene. All unfavorable symptoms increasing, castration is done for relief.

*Demonstrable Results.* Marked and satisfactory diminution in the size of the enlarged prostate, without change in frequency of urination day or night, without alteration of tidal, but with slight decrease of residual urine. Pyuria, bacteriuria, and pyelonephritis remain practically the same. In a few words, the double orchidectomy has caused an almost complete atrophy of the prostate gland without effecting any change in a chronically inflamed and degenerated bladder and equally without curing or even benefiting a chronic pyelonephritis from extension.

But, on the other hand, as I have said, relapse in the sense of the return or recurrence of the overgrowth has not yet been reported, and in no case among those who have been benefited physically by the operation and who have been restored to good general health have there been any consecutive phenomena, either mental or physical, which could be attributed to the castration. I am now constantly asked whether any change in voice or in manner, any diminution of mental energy, any sudden putting on of flesh, any alteration of figure, or, in other words, any appearance of "eunuchism" is to be expected. I can only say that, so far as I know, nothing of the sort has occurred and that I believe it to be in the highest degree improbable and unlikely that it will occur.

A personal communication received from Dr. Francis L. Haynes, Los Angeles, dated August 7, 1895, states that the first patient whom he castrated for enlargement of the prostate, and who was the first case operated on in this way in America, has remained in the favorable condition described in my paper in the July *Annals of Surgery*. The operation was performed December 12, 1893; the condition of the patient in August, 1895, was as follows: "The urine is passed normally without the use of the catheter; the man is obliged to rise once at night. He has passed 9 hours without voiding urine, but the average is five times daily. There are two drams of residual urine, which is perfectly normal. The patient feels well. Examination with the vesical sound indicates that the prostate has nearly disappeared. Digital examination by the rectum shows that the large lateral prostatic masses that were present before the operation have entirely disappeared, so that nothing can be felt ex-



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cept normal bladder-wall, which is, however, a little thickened. The patient's mind is in excellent condition. He says: 'It is a good operation and everybody with my disease should go through it.'"

This is the oldest case of which I have recent information.

*Excision of the Vas Deferens.* In July I reported the effect of ligation or section of the vas deferens in seven dogs that had been killed at various periods afterward. After giving the details, I said that, while there were comparatively few changes in the testicles themselves, there was nevertheless a constant loss of weight in the prostate in every dog that died after 8 days. Even at 10 days this loss was perceptible. In dogs which were kept for 52 days the atrophic changes were unmistakable, and they were to be found in nearly every section. I added: "If these results are reliable it will certainly be worth while to investigate still further the effect of obliterating the vas, although outside of these experiments there would seem to be every theoretic reason to agree with Griffiths who says 'With regard to the suggestion made by Mr. Reginald Harrison of the division of the vas deferens in cases of enlarged prostate, I have not sufficient experience to arrive at a conclusion; but, seeing that obliteration of the vas deferens has so little effect upon the structure and secretion of the testis, it must be doubtful whether the operation will suffice to influence the enlargement of the prostate.' Possibly I have wounded other structures in exposing and tying the vas, but I was very careful and the operation is easy. It may well be that the whole effect upon the prostate caused by the removal of the testicles is exerted through the medium of the nervous system. It would be easy to make a strong argument in favor of this view, basing it on well-known physiologic facts. And it may also be that in tying or cutting the vas certain nerves, more potential than others, are included or are themselves divided. In the dog they are all small and difficult of recognition without an extensive dissection. I wanted to tie or divide the nervous constituents of the cord alone and in a separate series of experiments, but the difficulty of finding them all and of avoiding damage to other structures was so great that I gave up the idea after some trials. Still, I should think it feasible and hope to make the attempt at some future time. Dr. King, of Toronto, has, in two experiments on dogs, had results from dividing the vas precisely similar to those I have detailed, a fact which increases my confidence in my own experiments."

In the summary of that paper I said with reference to this subject: "My experiments on dogs have shown in nearly every case in which the vas deferens was tied or divided on both sides, that, without much change in the testicles, there were beginning atrophy and considerable loss of weight of the prostate. These experiments need repetition and confirmation, as the absence of corresponding testicular change seems to make the results somewhat anomalous. It is possible that the inclusion or severance of small but important nerves may account for the effect on the prostate."

There is now additional evidence to offer. Pavone records in *Il Policlinico*, June 1, 1895, the result of his experiments on dogs with regard to the effects of removing the testes or the vas deferens alone. He finds that bilateral excision of the vas deferens in dogs brings about the same atrophy of the prostate as castration. Drawings of the microscopic appearance of the prostate glands after castration and excision of the vasa deferentia, respectively, show that practically the same changes occur after both operations. The author, therefore, recommends excision of the vasa deferentia for prostatic hypertrophy in preference to castration, as being a simpler operation, and giving equally good therapeutic results.

Isnard, in the *Centralblatt für Chirurgie*, 1895, No. 28, reports two cases in which he performed division and ligation of the vasa deferentia for enlarged prostate. The first operation was performed in 1894. The patient died of marasmus two months later. At the autopsy he was found to have had carcinoma of the prostate, and consequently no benefit could have been expected to follow the operation.

On May 1, 1895, he performed his second operation, on a man, 72 years of age, who had suffered for the past year from the result of prostatic hypertrophy, in combating which all the usual methods of treatment had been useless. The patient was presented before the Medical Academy on June 14th, entirely cured. Retention of urine and incontinence had entirely disappeared. During the night the patient was able to retain his urine seven hours. It is now clear and normal, while formerly it was purulent, and from time to time mixed with blood. The prostate which before operation was as large as half a nut, can now scarcely be felt by examination per rectum.

Dr. E. E. King, of Toronto, sends me the following details of a case in which he excised 2½ in. of each vas deferens. The man was 65 years of age, and was in great distress from the results of prostatic enlargement. The patient stated that five days after the operation the relief that he had experienced since its performance had already fully repaid him. The middle lobe was the most enlarged. The gland was very hard. The effort that had formerly been required to start the stream was at the time of report practically absent.

Dr. F. Tilden Brown, of New York, has furnished me with the details of a case in which he applied double ligatures to both vasa deferentia for enlargement of the prostate in a man of 70, who was wholly dependent upon the catheter, not being able

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to pass a drop of urine voluntarily during the three weeks he was under observation in the hospital. The operation was done with cocain-anesthesia. On the second day after the operation he began to pass a few drops of urine. At the date of Dr. Brown's letter, 2½ months after the operation, the patient was perfectly comfortable. Urine was passed on an average of four-hour intervals, and but for the advice of the author the catheter would have been dispensed with. The residual urine averages a little more than one-half the quantity passed at a voluntary effort. Before operation the catheter was inserted 9½ in. before drawing urine, and at the present time 8½ in.

Chalot reports the following case in *L'Independence Médicale*, November 6, 1895. A man, aged 64, had been troubled with moderate symptoms of enlargement of the prostate for 15 years, and with decided symptoms for two years. He had been addicted to the use of liquor and to sexual excesses; he had never had gonorrhea. He was obliged to pass urine frequently, especially at night, but without feeling relieved. The stream was small and intermittent. The length of the urethra measured 26 centimeters. The urine was clear usually, but was sometimes a little blood-stained at the end of micturition. Rectal examination showed the transverse diameter of the prostrate to be about 5 cm. The gland was uniformly enlarged. There was neither calculus nor tumor of the bladder.

On February 28, 1895, Chalot resected 1 cm. of each vas deferens after having applied double ligatures of fine silk. Two months later the patient was in good spirits, his appetite was good, he had gained in weight, and micturition was about normal; he urinated 3 or 4 times a day and twice during the night. The testicles were sensibly smaller, but not as much as the author had been led to believe from the published observations. Their consistence had scarcely increased, as had been noted by Isnardi. Rectal examination showed the prostate to have decreased one-half in volume.

In July, Chalot heard that the patient had frequent and complete erections, and that he indulged in sexual intercourse. The general condition was excellent; the urine was passed naturally and freely.

Guyon reported to the French Association of Surgery (*La Tribune Médicale*, October 30, 1895) three cases in which a portion of the vasa deferentia had been resected for hypertrophy of the prostate gland. Two of these were operated upon by Guyon and one by Leugeu. In one of the cases the enlargement was considerably diminished. In all, catheterism was more easily performed, and was required less frequently. In Legueu's case, a voluminous epididymitis was relieved.

In the light of these facts I believe excision of the vas to be a justifiable experiment, especially in cases which, while otherwise fitted for castration, are either so ill that even that operation becomes dangerous, or so well that they are prevented by sentimental reasons from attempting to arrest in that way an overgrowth of the prostate that unrelieved would surely end their lives after a more or less prolonged period of great suffering.

## CLINICAL LECTURE.

### *SOME PHASES OF SYPHILIS OF THE BRAIN.*

*A Clinical Lecture delivered at the Philadelphia Hospital.*

BY CHARLES K. MILLS, M.D.,
NEUROLOGIST TO THE HOSPITAL; PROFESSOR OF MENTAL DISEASES AND OF MEDICAL JURISPRUDENCE IN THE UNIVERSITY OF PENNSYLVANIA, ETC.

(Concluded from page 610).

CASE VI. *Paralysis of the left abducens, with dilatation and immobility of the right pupil; slight neuroretinitis.*—The patient, J. D., aged 36 years, has a history of gonorrhea, syphilis, and alcoholism. He has improved so much since admission that I cannot show you the most striking feature of his case. As will be observed, a left internal strabismus is now scarcely detectable. On admission he had marked internal squint of this eye. The right pupil is seen to be larger than the left and does not respond to light. From the statements of the patient and the records furnished by Dr. Oliver I learn the following facts: Shortly before his admission to the hospital he had occasional spells of dizziness and some frontal headache. Dr. Oliver found that he had almost complete paralysis of the left external rectus muscle, and associated with this was slight dilatation of the right pupil with almost total immobility of the iris to light. No disturbance of accommodation was present. The left iris was mobile to light and accommodation. Slight neuroretinitis was also present and vision was reduced to 1/7 and 1/9. Under 50 grains of potassium iodid three times daily, the patient's vision became practically normal, the left internal squint nearly disappeared, and the general condition of the patient greatly improved. The dilatation of the pupil remains.

This is clearly a case in which the foci of syphilitic disease attacked the root-fibers or trunk of the sixth nerve and the nucleus or root-fibers for movements of the iris. A nodose periarteritis or a gummatous meningitis, or both conjointly, might account for the phenomena.

CASE VII. *Implication of the cranial nerves (except the sixth) from the fifth to the ninth, inclusive.*—L. D., aged 26 years, a mulatto, had rheumatism about nine months ago. Seven years ago he was struck with a bar of iron on the top of his head. No other history of importance was obtained. Four months before admission he began to have constantly frontal and occipital headache, which gradually grew worse. One morning he found the right side of his face entirely paralyzed, and he had a ringing sensation as if his right ear was "plugged up."

On admission this patient was found to have complete paralysis of all the muscles of the right side of the face, including the muscles supplied by both the seventh

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nerve and the motor distribution of the fifth (Fig. 6). No deviation of the tongue was present. Anesthesia was present on the right side of the face, extending from the median line to the angle of the jaw, and from 2 in. above the hair-line to the point of the chin. The conjunctiva of this side was also totally anesthetic, as was the right half of the tongue. No part of the body other than the face was anesthetic. Taste was entirely lost on the right side of the tongue, both at the tip and posteriorly, showing implication of both the chorda tympani and the glossopharyngeal. The electric reactions were those of degeneration in the affected muscles. A watch was heard by the right ear at about 2½ in., and by the left at 18 in. A fine haze spread over the right cornea, which on close examination proved to be due to numerous small points. A beginning neurokeratitis

FIG. 6.

Paralysis of the muscles supplied by the seventh and motor fifth nerve on the right side. In this case anesthesia of the right side of the face was also present, total in the ophthalmic division and partial in other divisions of the fifth. The eighth and ninth nerves were also implicated, as shown by loss of hearing and complete loss of taste on one side.

was evidently present. Under large doses of potassium iodid the patient made considerable improvement; in particular the area of anesthesia decreased, the neurokeratitis passed away, and there was considerable improvement of the paralyzed muscles.

In this case a large gumma probably occupied the lateral aspect of the pons and of the upper portion of the postoblongata. The abducens nerve escaped because of its more median position.

CASE VIII. *Complete facial and auditory paralysis.*—E. McC., aged 39, on awakening found her face drawn to the left, with mobility to shut her right eye. She is deaf and has marked tinnitus on the right side. The facial lines are obliterated on the same side. It is not necessary to go into a detailed study of this case which is one of comparatively common type. The majority of cases of peripheral facial paralysis, the so-called Bell's palsy, are of rheumatic rather than of syphilitic origin; but when a complete or nearly complete paralysis of the eighth (auditory) nerve is associated with paralysis of the seventh, as in this patient, the lesion is nearly always a gumma or gummatous meningitis localized near the superficial origin of these two nerves. Doubtless this patient, who has only been recently admitted, will improve rapidly under specific treatment.

It was my intention to take up the subject of syphilitic pseudoparesis in the present lecture, but this and some other phases of encephalic syphilis will have to be postponed to another occasion. We see in this hospital three types of syphilitic disease in which the diagnosis of general paralysis of the insane is the problem. In the first place the case may be one of syphilitic pseudoparesis, the lesion being of Fournier's true specific class, and more or less amenable to treatment; in the second place, the case may be one of general paralysis of the insane in its most usual type—a parasyphilitic disease, one that will not respond to therapeutics; and in the third place, the case may be of transitional type, one in which the pseudoparesis is seen passing into parasyphilitic disease.

It is probable that a true inflammation of the brain-substance sometimes takes place as the result of syphilitic infection, but this is rare, and occurs especially in the vicinity of gummata, and in association with meningitis. A softening which is in reality necrotic and due to obliterative inflammation of the vessels, or to the occlusion of the vessels by a growth or an exudate, is sometimes supposed to be an encephalitis of "inflammatory softening." A form of localized disseminated encephalitis has been described by Charcot and others. The symptoms of local or disseminated encephalitis may be as multiform and irregular as the lesions producing them, and they will often be associated with the symptoms of the associated tumor, meningitis, or arterial disease—indeed, the more pronounced symptomatology of the latter affections will largely mask or overshadow those of encephalitis. Paresis, anesthesias, amnesias, cranial-nerve disorders of slight or marked character, visual, auditory, and other phenomena of the special senses of cerebral origin, may be among the symptoms.

Some forms of focal sclerosis of the nerve-centers are due to syphilis. According to Lancereaux, the syphilitic forms of sclerosis can be diagnosticated from the non-syphilitic by the greater tendency of the neuroglia to fatty degenerations and by the occurrence of foci of softening in their neighborhood. Whether or not true insular sclerosis of the brain is of syphilitic origin may be regarded as doubtful, although analogy would favor this etiology. Cases of miliary sclerosis and of lobular sclerosis have been recorded with details of autopsies and microscopic examinations of patients with clear histories of syphilis.

In conclusion let me say a few words about the treatment of such cases as have been presented in the course of this lecture. Cases of these clinical types, if recognized early and treated actively, will often respond favorably to treatment; cures, or at least approximate cures, can in some instances be obtained. Often the disease has produced some effects that are permanent, and even when it is arrested it is necessary to keep a watchful eye for years on the patient, reinstituting the treatment at regular periods even if no renewed evidences of syphilis are present.

Many practitioners seem to hail the diagnosis of nervous syphilis with a sense of satisfaction which has underlying it a feeling that in all such cases the prognosis is

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good. It is possible to remedy some of the effects of nervous syphilis or to remove some of its symptoms; it is even possible that a cure may be attained, but this, as Gowers asserts, has never been proved.

The great remedies for nervous syphilis are the iodids and mercury. Authors differ as regards their relative efficiency, most authorities believing that either or both may be efficient. Some would disregard mercury altogether in many cases. Gowers holds that on the whole the iodid is the most useful and the most certain of the two drugs; still that either may be used with success in most cases. When the iodids fail, which is very rarely if success can be obtained at all, mercury may be used successfully even for the late manifestations.

The administration of large doses of the iodids, as much as from 400 to 800 grains in a day, has been called the American method. The iodids should always be given in an efficient manner. My usual plan is to begin with doses of from 15 to 20 grains three times a day, and increase by 5 or 10 grains daily until as much as a dram or even more is taken three times daily. I have seldom found it necessary to administer more than half an ounce in a day. On the whole, the amount which has proved most successful is from 2 to 3 drams daily. If iodism is produced, it may be necessary to discontinue the use of the drug for a time or to diminish the dose, although strange to say, occasionally when iodism results from the use of small doses, it may be made to disappear by rapidly increasing the amount ingested. Undoubtedly in some cases from 300 to 400 grains of potassium iodid or of sodium iodid daily will be well borne and will produce rapidly beneficial results.

Of the preparations of mercury used by the mouth, calomel and the biniodid are to be preferred, the former in doses of from $\frac{1}{8}$ to $\frac{1}{4}$ of a grain every two or three hours, giving at the same time, if necessary, preparations of opium, such as paregoric or even morphin, in order to prevent looseness of the bowels. The biniodid may be used in doses of from $\frac{1}{12}$ to $\frac{1}{8}$ of a grain every two hours, administering after each dose, if the bowels are affected, small doses of paregoric.

The use of mercury by inunction, if this treatment can be systematically and thoroughly pursued, is one of the best mercurial methods in nervous syphilis. The official ointment of mercury and mercury oleate are the preferable preparations. From $\frac{1}{2}$ to 1 dram can be used daily. In order to be exact as to the amount used, a good plan is to divide an ounce of the ointment into $\frac{1}{2}$-dram portions, wrapping each of these in paraffin-paper. Mercurial inunctions and the use of potassium and sodium iodids may often be advantageously combined.

In Germany in particular and to some extent in this country, under the influence of the teachings of Wolff and others, mercury has been employed hypodermically and in some instances with striking success. The insoluble compounds of mercury and especially calomel are to be preferred.

Gowers wisely suggests that every syphilitic subject should for five years after the date of his last symptoms have a three-weeks' course of treatment twice a year, during which he should take from 20 to 30 grains of iodid daily. It is better that this rule should be adopted three times during the year instead of twice.

# CLINICAL MEMORANDUM.

## REPORT OF A CASE OF FECAL FISTULA—OPERATION WITH THE MURPHY BUTTON.[1]

BY A. E. SPALDING, M.D.,
OF LUVERNE, MINN.

A SIMPLE and effective means of uniting the intestine, which is often needed in case of wounds or gangrene caused by the various forms of strangulated hernia, has long been desired. To Dr. J. B. Murphy, of Chicago, belongs the credit of making an advance in intestinal approximation which, to my mind, is one of the greatest discoveries of this century. That his button fulfils all the requirements in such cases is shown by his reports in THE MEDICAL NEWS of Feb. 9, Nov. 16, and Nov. 23, 1895.

I wish to report the following case:

On May 13, 1895, I visited Mrs. S. W. Clement, aged 67, residing at Jasper, Minn., with a view of operating on a fecal fistula that had resulted from an old femoral hernia of several years' standing. The fistula had occurred four weeks previous to my visit, and the entire contents of the intestines escaped at the opening or openings near the right femoral ring. The integument at the upper and anterior portion of the right thigh covering Scarpa's triangle was perforated with numerous openings, and the tissues were excoriated and tender from the constant irritation caused by the intestinal discharges. The patient was weak and much emaciated; the feet and ankles were edematous and the urine showed considerable albumin. With this unfavorable outlook, taking her age into consideration, I refused to operate and returned home. About a month later I received a letter from her attending physician saying that she was anxious to have something done for her relief. On June 27th last, with the assistance of Dr. Jenckes, of Jasper, and Dr. McGillivray, of Pipestone, the patient being placed under the influence of chloroform, I made an incision 1½ in. to the right of the median line and 3 in. in length, terminating at a point 1 in. above Poupart's ligament. The fistulous openings and the intestine had previously been irrigated with warm water. After the peritoneum was incised a catheter was passed into the fistula, and with two fingers in the abdominal cavity the adherent intestine was easily found. Great difficulty was experienced in detaching the bowel from the femoral ring, the adhesions being very firm. The clamp-forceps was used to prevent the escape of fecal matter into the abdominal cavity, this precaution being taken before an attempt to free the gut was made. After its separation the bowel was brought out of the abdominal wound and a section made on either side of the opening. This opening included the whole circumference of the bowel, excepting a small portion at its mesenteric attachment. That part of the intestine below the fistula had become contracted, owing to the continued non-performance of its proper function. The medium-sized Murphy button was used, and an end-to-end approximation made. Great care was taken in the adjustment of the peritoneal layers of the mesentery with the running thread previous to pressing the button together. The mesentery was

[1] Read before the Minnesota Valley Medical Society, Mankato, Minn., December 3, 1895.

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then stitched with catgut and the abdominal wound closed. The patient recovered without a bad symptom. The bowels moved naturally on the sixth, and the button passed on the sixteenth day.

I believe this patient to be the oldest on record in which an end-to-end approximation was successful.

## TOXICOLOGIC NOTE.

### *A CASE OF ATROPIN-POISONING IN WHICH ONE GRAIN WAS TAKEN; RECOVERY.*

BY LAMBERT OTT, M.D.,
OF PHILADELPHIA.

THE patient, a woman, 59 years of age, had taken 20 drops of a 4 per cent. solution of atropin sulphate by mistake. One-and-a-half hours afterward she said to her daughter that she must lie down as she felt so very heavy and tired, scarcely able to stand up, and her daughter seeing that her face and hands were a bright scarlet began an investigation and discovered that she had taken the eye-drops internally. I saw the woman at 12.30 o'clock, about 4 hours after the ingestion of the poison, and found her with glossy eyes, dilated pupils, scarlet-red in the face and all over the body, the maximum redness being in the face, then on extremities, and minimum redness on the trunk except over presternum, where the blush equalled that of the face. She lay in bed complaining of great thirst, dry throat and tongue; she responded to my questions with difficulty, like one in the relaxation of alcoholic intoxication. She was scarcely able to move from one position in bed, and when I asked her to lift her arm she raised it slowly and with great effort only partly from the side, but not above the shoulder-level. Her tongue was protruded with difficulty, requiring several efforts to force it from the mouth. She spoke of a tingling numbness in the feet and hands, like one having cold, chilled hands when the numbness is so great that touch and prehension are nearly nullified. She swallowed water with difficulty, making several efforts before a dram was gotten down. She was constantly passing water, apparently an ounce every 20 minutes. About 1 o'clock, or 4½ hours after taking the drug, delirium of an ecstatic nature set in. She now was intensely red and puffed about the face like one bloated and reddened by excessive drink; she grew very restless, was tossing from pillow to pillow, with unquenchable thirst and lips so limp as to permit the water to run outside of the mouth. She passed water frequently. Her talk was rambling, of the scenes of her childhood, her native country, Sweden, and she said persons looked so far away, and when she reached her hands out and found them near she seemed amazed. The glass of water, bottles, and dishes on the table by the bedside seemed small and distant, and not to be standing upright or were inclining to fall. When given a glass of water to drink in the delirious excitement, having more strength than in the early stage, she insisted on turning the glass on an incline to drink therefrom. Then began an incessant picking at the bed-clothes; pinching the arms of her daughter, who by sheer force had to restrain her in bed; reaching out to grasp imaginary objects and not finding them; a moving forward until restrained. Her respirations were rapid and short, the pulse feeble and 100 per minute, the temperature 101°. There was great wakefulness, the most incessant restlessness I ever saw in an ill person. In the early part of the trouble she seemed unable to move, like one paralyzed, but when the delirium set in she moved with more celerity. Later she described, as part of the delirium, seeing those about her as if their faces were unusually small and covered with black spots. She could not taste or feel; apparently she could hear; her sense of smell was not tested.

At 6.30 in the evening, 10 hours after taking poison, and about 5½ hours since delirium set in, she began to improve, having lucid intervals in which she anxiously inquired as to whether she was in danger, but before she understood or received a reply relapsed into her mental wandering. The next day she had lost her florid complexion and seemed greatly prostrated. On the 3d day after taking the atropin her mind was clear, her face decidedly pale, the extremities weak and tremulous in motion, and she had a constant desire to pass water. After that her recovery was uninterrupted. A peculiarity was noticed in the pupil not being as fully dilated as by the direct instillation of a strong solution of atropin, and holding a lighted match directly in front of the eye caused pupillary contraction. On the fourth day I put 2 drops of the 4 per cent. atropin solution in one eye, and soon after a larger dilatation of pupil followed than when under the systemic influence of a lethal dose. I gave her ℥ss of brandy every hour, a cup of strong tea every half-hour, then cinchona and tincture nux vomica in strong and rapidly repeated doses. I did not give her the physiologic antidote, morphin, fearing to bring on a stupor and increase a dangerous relaxation; but active stimulation and large drafts of water as often as she could take them was my treatment.

## MEDICAL PROGRESS.

***Congenital Atresia of the Hepatic Duct, with Cirrhosis of the Liver.***—M'CALLUM (*Archives of Pediatrics*, vol. xii, No. 11, p. 842) has reported the case of a male infant, four months old, born at term, with a history of jaundice dating from a fortnight after birth. The discoloration had progressively increased despite medication. At the age of eleven weeks the left eye became severely inflamed, leaving a scar upon the cornea. For a week there had been cough. The child had always taken the breast greedily, but for two days it had vomited curdled milk. The bowels were constipated and the evacuations were pale, as a rule yellow, but sometimes greenish. The urine stained the napkins of a coffee-color. There was no history of hemorrhages and no cause could be assigned for the condition; a history of syphilis could not be elicited. The liver was enlarged and an umbilical hernia existed. Later the child was seized with convulsive movements and vomited coffee-grounds material. Death took place two days after the little one came under observation. Upon postmortem examination, in addition to the general icteric discoloration, the lungs presented numerous deep-blue patches, some of considerable size, extending into the pulmonary structure, in the case of the larger ones to an appreciable depth. Similar isolated patches were also present in the midst of the pulmonary tissue. These were found to be hemorrhagic areas. The liver was of a deep-brown

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color generally, but its upper surface was paler. The organ presented a finely granular aspect. The gall-bladder could not be seen projecting from the anterior edge, and careful examination revealed, in a recess on the under surface, only a greatly shrunken and flaccid structure. A bristle introduced into the papilla in the duodenum passed freely upward toward the transverse fissure of the liver. The duct was found to be continuous with the cystic duct, passing onward with a sigmoid curve to the empty gall-bladder, which was found collapsed and misplaced. No trace of hepatic duct could be found except a thin, white cord. The liver, which was tough on section, presented no appearance of dilatation of the ducts. In the neighborhood of the duct and of the transverse fissure of the liver were a number of enlarged glands presenting a deep-brown color resembling that of the spleen, and there were also glands in the abdomen not so much enlarged but similarly colored. Microscopic examination showed an extraordinary degree of cirrhosis of the liver.

***A New Division of the Movements of the Heart.***—As the result of a physiologic study SCHEIBER (*Zeitschr. für klin. Medicin*, B. xxviii, H. 5, 6, p. 402) has arrived at the conclusion that every revolution of the heart in circulatory activity presents three phases: (*a*) systole, (*b*) relaxation, and (*c*) distention with blood, dilatation, true diastole. In the action of the heart separated from the circulation and removed from the body, but two phases are discernible, *i. e.*, systole and relaxation. The rigid heart that has ceased acting represents a condition comparable to the relaxation of the living heart. The designation of a cardiac "pause" is not only superfluous, but embarrasses an intelligent conception of the individual phases of the heart's cycle. The successive or synchronous occurrence of the heart's movements in the several parts of the heart (auricles and ventricles) during a cardiac revolution are as follows: At first occurs the auricular systole and, at the same time, the ventricular diastole; then ventricular systole and, at the same time, after a scarcely appreciable auricular relaxation, a protracted auricular diastole continuing throughout the period of ventricular relaxation that follows the ventricular systole and up to the beginning of the auricular systole indicative of the beginning of the succeeding cardiac revolution. A change in the form of the heart and in the position of the apex appears not first during the systole but during the third phase, that of true diastole, inasmuch as the flattened-cone shape of the relaxed heart is transformed during this phase of distention with blood into that of a cone with a round base, and the apex of the heart is raised during this phase from its basis of support so as to assume a vertical position with relation to the plane of the base of the heart.

***Tuberculosis of the Spinal Cord.***—HASKOVEC (*Archives de Neurologie*, September, 1895) has reported the case of a woman, 22 years old, who presented slight symptoms of pulmonary disease, together with tingling and pricking sensations in the lower extremities and slight weakness. The weakness, after the lapse of some three months, rapidly increased in the course of a few hours to almost complete paralysis, with enfeeblement and soon abolition of the reflexes and retention of urine and feces. Tactile sensibility was preserved in the lower extremities and upon the lower part of the abdomen, but there was complete analgesia, with thermo-anesthesia. In the course of a few weeks tactile sensibility also was lost and muscular atrophy was apparent; and similar changes showed themselves in the upper extremities. Death took place a few weeks later. Post-mortem examination disclosed the evidence of advanced pulmonary tuberculosis, with extensive disease of the spinal membranes and cord, the lesions being most marked in the upper dorsal region, especially about the posterior roots; the infiltration was partly diffuse, partly nodular.—*British Medical Journal*, No. 1816; Epitome, p. 61.

***Diphtheria of the Cutaneous Surface.***—FLESCH (*Berliner klinische Wochenschrift*, 1895, No. 43, p. 935) has reported the case of a girl, 2½ years old, who was accidentally burned with hot water upon the face and trunk. The lesion varied in severity in different places, being most profound upon the trunk. Under treatment with 2 per cent. salicylated vaselin marked improvement resulted in the course of a week. At the end of this time the mother kissed the child upon the neck and on the following day presented symptoms of diphtheria, passing through a well-pronounced attack. A sister and the husband also suffered attacks of diphtheria. In the course of three days the child presented in the situation touched by the mother's lips a circumscribed, whitish, swollen area surrounded by edema, from which on cultivation diphtheria-bacilli were isolated. The throat showed no evidence of involvement. Two injections of antitoxic serum of 100 immunity-units each were made, but without appreciable effect. Slight paralysis of the palate appeared as a sequel.

***Two Consecutive Attacks of Scarlatina.***—SEQUEIRA (*British Medical Journal*, No. 1820, p. 1232) has reported the case of a boy, five years old, who suffered from two attacks of scarlatina in rapid succession. In the first the rash was well marked, the temperature high, and the tonsils swollen and injected. The disease pursued a moderately severe course, and desquamation began about the ninth or tenth day, and continued until the eighth week. Two weeks later, recovery having apparently taken place, the patient while out of doors was overtaken in a shower of rain, and during the night complained of sore throat and vomited twice. On the next morning the tonsils were congested and much enlarged; the temperature was 104°, and a punctate scarlet rash appeared on the chest and back, and soon spread over the whole body. The second attack was rather more severe than the first. Desquamation commenced about the end of the first week and lasted until about the end of the eighth.

## THERAPEUTIC NOTES.

***A Case of Bromid-intoxication.***—BRUCK (*Deutsche med. Wochenschrift*, 1895, No. 45, p. 753) has reported the case of a woman who took 300 grains of potassium bromid in five equal parts in the course of thirty-six hours. After the ingestion of the third dose the patient felt languid and apathetic, and these feelings became more pronounced with the succeeding doses. The mind became

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obscure and confused, and the eyelids could be held open only with difficulty. A sense of dull pressure was referred to the temple and forehead. The ears felt as if displaced, and sounds appeared to be distant, although all that was said was comprehended. Tactile sensibility was benumbed. A bitter, burning taste was felt in the mouth and pharynx, but there was neither nausea nor vomiting. The appetite was unimpaired, although the patient had no inclination to partake of food. All movement required a distinct effort. There was an absence of drowsiness. The pupils were contracted and reacted sluggishly to light. The pulse was 62 per minute, the respiration 16, the temperature 98.2°. In the course of a few days uniform elevations and hyperemic efflorescences appeared upon the skin in various situations, notably on the face, the forehead, and the chest and back.

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***In the Treatment of Uremic Convulsions*** the following plan is recommended by MALBEC (*Rev. Internat. de Méd. et de Chir. Prat.*):

1. Removal of ten or fifteen ounces of blood, to be repeated if necessary.

2. Inhalations of chloroform until the convulsions are controlled.

3. Administration by enema of a mixture of

| | |
|---|---|
| Musk . . . . . | gr. vijss. |
| Chloral hydrate . . . . | gr. xlv. |
| Yolk of egg . . . . | No. j. |
| Distilled water . . . . | fʒv. |

4. Administration hourly of a tablespoonful of a mixture of

| | |
|---|---|
| Strontium bromid. . . . | ʒj. |
| Sirup of orange-flower . . | fʒjss. |
| Distilled water . . . . | fʒiij. |

5. Restraint of thighs and legs wrapped in cotton. Absolute milk-diet.—*Frauenarzt*, 1895, No. 11.

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***The Treatment of Akromegaly with Pituitary Extract.***—At a recent meeting of the Société Médicale des Hôpitaux, MARINESCO (*Mercredi Médical*, 1895, No. 46, p. 550) reported three cases of akromegaly treated with pituitary extract. The first case was in a woman, fifty-three years old, in whom the first symptoms of the disease had been observed nine years previously; the second in a man, fifty-four years old, in whom the disease had existed for eight years; the third in a woman, thirty years old, who had been epileptic, and whose symptoms had begun nearly five years before. All three presented paroxysmal headache, visual derangement (concentric narrowing of the field in one, slight hemianopsia in the second, and well-defined hemianopsia in the third, in which there existed also diabetes mellitus). In the course of treatment headache and other pains disappeared, and the general state was much improved. There was increased freedom of movement of the extremities and perhaps some diminution in volume of the soft parts. In addition there occurred noteworthy diuresis.

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***Cold-water Enemata in the Uremic State.***—FOXWELL (*Birmingham Medical Review*, vol. xxxviii, No. 207, p. 257) attributes the uremic state to the abnormal retention of waste products in the blood and to excessive peripheral contraction producing stasis of blood in the brain. Holding this view he was led to try the effect of simple dilution of the blood with a bland fluid, in order to lessen the concentration of the poison, with a consequent lessening of the peripheral contraction. He reasoned that by this means the brain would be more fully supplied with blood, and this would be of a better quality; and that the dilatation of the renal arterioles would allow a greater flow of blood through them, with a consequent increased excretion of morbific matter. To effect this purpose a half-pint of iced water is injected into the rectum every hour, in conjunction with such other treatment as may seem indicated.

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***Cobalt as an Antidote to Cyanid-poisoning.***—ANTAL (*Physiol. Stud. aus der Univ. Budapest*, 1895) has shown experimentally that the salts of cobalt are the best antidotes to poisoning with the cyanids. Cobalt nitrate forms with potassium cyanid a non-toxic salt, potassium and cobalt cyanid, small doses of the nitrate sufficing to neutralize large amounts of the cyanid. The physiologic activity of the salts of cobalt depends upon the concentration of the solutions employed. Solutions of from ½ per cent. to 1 per cent., which are capable of counteracting the effects of lethal doses, exercise little influence upon the heart and upon the red blood-corpuscles. In cases, therefore, of poisoning with potassium cyanid it is recommended that from 10 to 30 c.cm. of a ½ per cent. or 1 per cent. solution of cobalt nitrate (gr. ¾—gr. ivss?) be administered both by the mouth and subcutaneously. —*Therap. Wochenschr.; Nouveaux Rem.*, No. 21, 1895.

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***Amygdophenin*** is the name given to a substitution-derivative of paramidophenol that appears as a grayish-white, crystalline, light powder, soluble in water with difficulty. STÜVE (*Centralblatt für innere Medicin*, 1895, No. 46, p. 1113) reports the results of clinical observations that show the new product to be exceedingly useful in the treatment of acute rheumatism; of some value in the relief of neuralgic pain; and of little or no use as an antipyretic. The dose employed was gr. xv once or several times daily, up to ʒjss, given in powder or compressed tablet. Bad effects were not observed. Exceptionally vertigo, ringing in the ears, and sweating occurred.

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***Pilocarpin for Aural Vertigo.***— LEMAIREY (*Ann. des Malad. de l' Oreille, du Larynx*, etc., T. xxi, No. 11, p. 420) has reported the case of a man, twenty-nine years old, presenting symptoms of Ménière's disease, or aural vertigo, in which relief was afforded by the subcutaneous injection of pilocarpin nitrate. A 1 per cent. solution of the drug was employed, and gr. $\frac{1}{18}$ was injected daily in the morning before breakfast, the patient remaining in bed throughout the period of sweating.

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***For Hyperidrosis:—***

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|---|---|---|
| ℞.—Balsam. Peruvian. . . . | | gr. xxiv. |
| Acid. formic. } Chloral hydrat. } | . . | āā ʒij. |
| Alcohol. . . . . | | fʒv.—M. |

S.—Apply topically in spray or by means of cotton tampons. —HEUSNER, *Semaine Médicale.*

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## *HEROISM AFTER THE BATTLE.*

THOSE who were at a safe distance from the battle always seem to know much more about how it was fought than those who were actually engaged. If any body of men can claim to have borne the brunt of the battle in the long and painful war against smallpox—and its sturdy ally, prejudice—it is our own profession, and yet while for three generations we have been unanimous in our belief that the weapon most relied upon in every onslaught was the point of the vaccine-lance, now that the danger is over, and the enemy not only routed from every quarter but almost annihilated, in our rear goes up a piping cry, "It wasn't vaccination that won the battle."

What it was that *did* scatter the foe the criers have never deigned to explain until just recently, when the memory of the struggle has faded and smallpox and its ravages have become merely an historic fact with most communities. But some people confuse *historia* with *hysteria*, and in the fulness of time comes one of them, a Mr. Alfred Milnes, M.A., otherwise unknown to fame, and in a most imposing essay in the last *Arena* tells us "all about the war."

It is even worse than we had hitherto been led to believe; not only had our lance-points nothing to do with the victory, but the same is true of any other weapon or weapons carried by us, and also even of ourselves. We didn't win, or even take any prominent part in the struggle. It was the "sanitary march of civilization." In other words, the moral influence of the stay-at-homes had more to do with the victory than the onslaughts of the troops in the field.

The method of supporting this colossal claim is the well-worn and familiar one of juggling with a few selected statistics just so far as they will possibly stretch, and then filling in the gap with barefaced assertions. In the first place, vaccination, it is said, has had nothing to do with the decline of smallpox, for it has "been proved a failure," because it does not absolutely protect against an attack—as if any rational physician ever claimed that it did. This claim is supported by proudly pointing to the damning record of the three epidemics in England since 1850, which carried off altogether 78,000 people—that is to say, roughly (including the outbreak of 1881–1882), 85,000 people in half a century. These figures, in the mass, are certainly appalling to the nonexpert eye, but when we remember that they represent a death-rate of only about 60 per 1,000,000 living per annum, while by the figures of Dr. Farr (which Mr. Milnes himself later unguardedly quotes), the rate for the last half of the previous century was no less than 5000 per million living per annum, that a century earlier competent observers record that one person out of every three was pitted by the disease; and that only 50 years ago more than one-half of all the inmates of our blind-asylums were blind as a result of its ravages—they sink into comparative insignificance. The fact that the disease still destroys about one-eightieth ($\frac{1}{80}$) as many lives per annum as it did before vaccination is *hardly* conclusive proof of the "failure" of the latter to protect. In view of the fact that the immunity is only for a limited period, that revaccination is difficult to secure in many cases, and that the prejudice and fanaticism of thousands of such as our present essayist have had to be encountered, a "failure" of 1.2 per cent. is extraordinarily near success to the unaided eye, even granting a large credit to "general sanitary progress."

Besides, when we speak of progress in sanitation, we must remember that smallpox is not a filth-disease, although its mortality would unquestionably

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be lessened by cleanliness, drainage, etc., and that the chief and almost only "sanitary measures" applied to it have been vaccination and quarantine.

Mr. Milnes also entirely neglected to mention that these epidemics, whose large lists of deaths he so triumphantly adduces in support of his belief, in most cases either started or made their chief headway and fatality in ignorant and prejudiced artisan communities, where a sufficient proportion of his unprotected sympathizers lived to furnish fuel for their flames. It, however, leaks out unintentionally in his last cited outbreak (Sunderland), where in his desperate endeavor to include some "protected" cases in the attack, he declared that the epidemic comprised 100 cases, "9 of whom were vaccinated;" the percentage of vaccinated persons in the country being about 80 per cent. ! ! Comment is unnecessary.

His next assertion is that not only does vaccination not prevent, but that it does not mitigate the virulence of smallpox. This he supports by a choice selection of statistics, and then proceeds to assume an air of pathologic authority, and boldly asserts that vaccination not only does not mitigate a later attack of smallpox, but *cannot*—"such a claim is without precedent in science."

In his beautiful metaphor one attack of a disease may *prevent* another, "but whenever such protection is overcome, and the enemy breaks through the defences, it is apt to cast off all discipline and sack the place." It is, of course, too much to expect of a pathologist of Mr. Milnes' magnitude, that he should burden his memory with such trifling "precedents" as the curative use of inoculation in tetanus, in diphtheria, and in anthrax, but he might at least have heard of Pasteur's antirabic inoculations.

His grand final *tour de force* is the marshalling of a massive array of statistics to prove that smallpox has simply shared in the declining prevalence and fatality of contagious diseases and fevers in general. By a skilful and arbitrary selection, for purposes of comparison, of a few decades during the past century, he makes it appear that between the dates chosen smallpox had actually diminished less rapidly than the "continued" fevers. In his last comparison he deliberately selects a five-year period *in which an epidemic of smallpox occurred* (1881–1885), for his second period, to show how small was the rate of its decline.

But even taking his own figures, and simply comparing the death-rate at the extremes of the entire series, the deception is revealed at once. Thus in the decade, 1771–1780, the death-rate from smallpox was 5020 per annum per million, the death-rate from "fever" 6210 per million, while from 1866 to 1870 the rate from smallpox had fallen to 105 per annum per million, while that from fever had only reached 1970 per annum—a decline on the part of smallpox to 20 per cent. of its former virulence, and of "fevers" to only 30 per cent of their fatality—a difference in favor of smallpox of fifteen to one; but then a little discrepancy like this has no discouraging effect upon an antivaccinationist.

The magnificent general progress of sanitary science and intelligence has, indeed, done much to lessen the horrors of smallpox, as of all other diseases, and would have done more if it had penetrated further into the consciousness of such as Mr. Milnes and his ignorant followers. But that this alone is to be credited with the entire achievement can be overwhelmingly disproved by the very figures adduced in its support.

## EDITORIAL COMMENTS.

"***Only Nervousness.***"—In these days of sharp competition in almost every direction it is no wonder that there is a large field for the neurologists. In the commercial world we find that, as a class, the brokers are exposed to excessive nervous strain—one day they are rich, another day poor. They live on excitement, which is but another way of saying that they live on their "nerves." Among the professions, the country doctor is often pictured as living in a ceaseless round of toil, and while undoubtedly he is called upon for much exertion, both physical and mental, we cannot but feel that the young physician of our day who essays to build up a practice and a competency in a large city is subjected to a much greater strain in his struggle for existence. If he would succeed, not only must he effectually cope with the rivalry of his fellow-physicians, and live down the dispensary-abuse, but he must give clinical instruction, participate in the proceedings of the various local medical societies, write numerous medical papers, and attend to a host of other things.

This incessant strife for a livelihood involves an amount of nervous strain which should bring home to us with a sense of personal concern the importance of a condition which physicians are continually besought to relieve, and which they are prone to carelessly diagnosticate as "only nervousness," and straightway to dismiss from their minds. Such a diagnosis is on a par with the common use of the terms "malaria" and "nervous prostration;" and while it serves as a cloak for the ignorance or indifference of the physician, it also obscures the true seriousness of the condition, and deprives the

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sufferer of the relief which medical science and the healing art can and should afford.

It is to this phase of the subject that we desire to direct attention, and we cannot do better than refer to some of the suggestions thrown out by Dr. Herman Canfield in a paper recently read before the Society of Alumni of Bellevue Hospital. After calling attention to the "length, depth and breadth of that glib phrase—'only nervousnes,'" this writer makes an eloquent plea to physicians not to turn a deaf ear to the "only nervous"—or, as they are too often dubbed, "cranks"—but to sharpen their wits and bring their best energy to bear upon the difficult problem before them. "Do not tell the patient," he says, "that it is all foolishness, and that nothing terrible is going to happen, for she knows that already; but endeavor by systematic and painstaking inquiry and observation to unravel the tangle of cause and effect, and from the many disturbing elements try to discover the true cause of the nervousness." In doing this, one should, of course, draw out the essential points in the family-history and in the previous history of the patient, but it should be remembered that a quiet half-hour of observation of the patient, when the latter does not suspect it is going on, is worth more than any amount of direct questioning. These individuals, as a rule, become nervous not from any one distinct cause, but from a gradual dropping one after another of the links in their automatic life, thus throwing into prominence symptoms which are really exaggerated traits of the true character. It is not right, therefore, on discovering the existence of a slight inequality in the muscles of the eye, or of some abnormality in the nasal passages, or of phimosis, or an enlarged or adherent clitoris, or of pelvic disease, to jump to the conclusion that this condition is the prime cause of the nervousness. It is quite possible that the nose may be a little out of line or the uterus tipped slightly out of the usual position without giving rise to any symptoms; and when it is remembered how seldom are the nervous symptoms relieved by operation for pelvic disease until the symptoms themselves have also been treated, it is evident that we should search long and deeply for the cause rather than to seize rashly upon some slight abnormality for an explanation of the diseased condition of the nervous system. It is fashionable to ascribe all sorts of affections to overwork, but it has always seemed to us that worry rather than work is responsible for most of the mischief done.

In the paper referred to, the author gives a most graphic description of the steps by which a young girl commonly reaches that pitiable condition so lightly spoken of as "only nervousness." It is well known that young girls or young women are most likely to be so affected, and this may be readily explained by their greater impressionability, their education and training, and their mode of life. How often do we see delicate, anemic, high-strung nervous girls spending many hours each day in school, often without any lunch, or with a lunch of chocolate-cake or pastry, and then going home to spend more weary hours in preparing the school-lessons for the next day! They have had no recreation and no exercise in the fresh air, and are so tired that they can hardly eat, to say nothing of digesting, their evening meal; but that does not hinder them from going out in the evening to exciting entertainments or plays at the theaters. Amid such toil and dissipation, with no opportunity for proper rest and recuperation of nerve-force, with imperfect digestion, and, therefore, failing nutrition, how can nature be expected to produce a healthy, well-developed and properly balanced individual? She cannot, and does not. Of course, such improper training and environment tell most upon the young girl just budding into womanhood who, as Dr. Canfield aptly says, is usually "full of purity and innocence, and replete with ignorance as to her physical make-up." It is just at this time that the family-physician is called upon to treat the anemia, the amenorrhea, the dysmenorrhea, or the menorrhagia, which is nature's protest against this monstrous foolishness or gross negligence on the part of parents and guardians.

But to return to the management of these cases of nervousness. Having gained the confidence of the patient, and studied every minute detail, the cause or causes will be usually detected, and then the treatment may be begun. One of the first propositions laid down by Dr. Canfield in considering the treatment is the importance of demonstrating to the patient the futility of drugs or external means, and the fact that a successful issue depends chiefly upon herself. The whole life should be carefully regulated, and a change of environment and associations at once instituted. This is in itself a great help, for sympathetic friends rather serve to deepen false impressions, and among strangers the patient will feel a healthful moral restraint. The patient should be well fed—indeed, overfed—on a most nourishing and digestible diet, and should be especially cautioned not to pay any attention to symptoms that may arise, or may be supposed to arise from taking certain articles of food; for in a nervous person the feelings "should seldom be consulted, and never relied upon." A neglect to insist upon this has often made all the difference between success and failure. When the patient is very weak, rest in bed should be prescribed, and the needed exercise furnished by massage; but after the strength has returned sufficiently to admit of more exertion, the patient should be compelled day by day to do a little more, until finally vigorous outdoor exercise, such as riding horseback or on a bicycle, may be indulged in. The main points in the treatment are: (1) The physical restoration of the weakened nerve-centers; and (2) the education and discipline of the nerve associations.

***The Tubercle-bacillus as a Human Benefactor.***—In the November number of the *Dietetic and Hygienic Gazette*, Mr. Lawrence Irwell endeavors to show that the tubercle-bacillus is a benefactor of the human race, and that its extermination would have a detrimental effect upon the world at large. He contends that the larger portion of the community is made up of the "unfit," from an evolutionary standpoint, who marry and procreate from sexual rather than natural selection, and that this class includes those of a tuberculous diathesis. Such individuals are exceedingly prolific; but to counteract the baneful result of this state of affairs the tubercle-bacillus rapidly destroys the mother and her offspring. The remedy proposed is the education of the people in order to prevent marriage among those "unfit" from any cause.

While there is a modicum of truth in these several propositions, there is enough of fallacy to lead to incorrect

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conclusions. In the first place, we cannot admit that infection with or escape from tuberculosis (or other infectious disease, for all infections are alike in requiring a certain susceptibility upon the part of the individual) may be made the criterion of "fitness" or "unfitness." Tuberculosis is a disease from which recovery is not only possible but even common; while exemption may be overcome by exposure to given conditions. The tubercle-bacillus only develops where the soil has been brought to a certain grade of cultivation and fails to secure lodgment under opposite circumstances. Further, the offspring of tuberculous parents are not necessarily "unfit." Suitably surrounded they may reach a state of vigorous growth and robust health.

We fear that a logical application of the principles advocated by Mr. Irwell would lead to a test-exposure of all individuals to infection with the tubercle-bacillus (and other pathogenic microorganisms), and any that escaped would fall into the class of the "fit." We can agree to a voluntary restriction of marriage among those that manifest morbid physical or mental tendencies, and cordially indorse the proposal to disseminate this view as an educational measure.

While directing efforts to increasing the resistance of the individual to the invasion of disease, we must not neglect as far as lies in our power to limit the dissemination and diminish the virulence of its active causes.

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***The Billings Testimonial and Presentation***, an account of which is given in another column, was a unique and epoch-making event. To have conceived and to have carried it out will always be held by the profession as of the greatest credit on the part of Dr. S. Weir Mitchell. The heartiness of response in England and America testifies to a distinct advance in clearness of the professional consciousness, and to a feeling most worthy of congratulation. By it all there comes to light the fact that the heroism thus celebrated and rewarded is, as we have intimated, of a unique variety, and that this is its first clear recognition. The medical literary hero has never before been known, or at least not pointed out. But in very truth is there in all the world more genuine heroism than that in which one thus toils for many years with daily persistence and against ever-recurring difficulties to lessen the labors of thousands born and unborn, and to place medical literature and medical science on a vantage-ground whence we may all better carry on the long warfare against ignorance and disease? There is just as much genius, there is often more, required and expended in collating, classifying, and fittingly presenting the work of others, than in original research or in other work called, or miscalled, "original." Assuredly our gratitude to such lonely and tireless workers should be unstinted, and on this occasion it was so. One enjoyed the delightful generosity with which Dr. Billings honored his assistants as equally worthy with himself, and that with which the principal of these assistants, Dr. Fletcher, gave back all the honor to the friend and chief. Above all was the glad and affectionate pride the goodly company had in the new hero, and the common enjoyment of the noble emotion of unselfishness and delight in professional progress. Dr. Fletcher's explicit concession to Dr. Billings of the entire honor of the conception of the *Index-Catalog* effectually disposes of any claim of the kind by another.

In view of the large number of contributors to the testimonial, rendering it difficult to make proper acknowledgment to each without much delay, Dr. Billings has asked us to assure each and all of his friends of his profound appreciation of the fact that this is the highest honor that could be given him, and to return his heartfelt thanks.

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***Syphilis through Flea-bite.***—Jonathan Hutchinson, in the last (October) number of his unique and valuable *Archives of Surgery*, reports a primary lesion of most unusual origin.

An elderly member of the profession presented himself covered with an evidently syphilitic eruption, which rapidly disappeared under the use of mercury.

The only interest about the case was the question as to how the disease had been acquired. The doctor was evidently anxious to give all the information in his power, but was positive that he had never been exposed to any sexual risk, and, as he had retired from practice, no possibility of infection in that manner existed. He willingly stripped, and a careful examination of his entire surface revealed no trace of lesion whatever on the genitals, or at any point, except a dusky spot on one leg, which looked like the remains of a boil. This the doctor stated had been due to a small sore, the dates of the appearance and duration of which were found to fit exactly with those of a primary lesion. There had also been some enlargement of the femoral glands. He had never thought of the sore in this connection, but remembered most distinctly that it followed a *flea-bite* in an omnibus, and had been caused, as he supposed, by his scratching the place, though he could not understand why it lasted so long.

Mr. Hutchinson concludes that all the evidence tends to show that the disease had probably been communicated from the blood of an infected person through the bite of the insect. It thus appears that even the proverbially trivial flea-bite may prove a serious injury at times.

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## SPECIAL ARTICLE.

### BANQUET AND PRESENTATION IN HONOR OF JOHN S. BILLINGS, M.D., LL.D.

The American subscribers to the Billings Testimonial met at the Hotel Bellevue, Philadelphia, November 30, 1895, at 7.30 P.M.

Following the discussion of the menu, DR. S. WEIR MITCHELL, Chairman, after a few pleasant introductory words, called upon PROFESSOR J. M. DACOSTA, of Philadelphia, who said that he felt keenly the responsibility of speaking on behalf of the Committee, and of representing so many distinguished men, both in America and in England. He was, he further said, gratified that henceforth Dr. Billings was to be connected with one of our greatest institutions, and that hereafter he could be greeted, not only as a most distinguished member of our profession, but as a most distinguished Philadelphian. Dr. Billings, he continued, has many claims to distinction: he is well known in hygiene, he is a hospital-constructor, he has written a dictionary; but above all he is the author of the greatest index-catalog of our day,

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which has now reached sixteen volumes, with over 300,000 books and articles catalogued, and cross-references to over 800,000.

Commenting upon the enormous labor of such a task, the speaker referred to what Scaliger said of the bibliographer, the dictionary-maker, and the index-maker: that it was worse than toiling in the mines or at the anvil; and that a French author, in this connection, had said: "If there be an odious crime on earth; if any one has blasphemed the gods or killed his father, let him make a dictionary as punishment!"

Dr. Billings has made a dictionary, and has made an index, and yet he does not regard either of these tasks as a punishment, but speaks of one in his preface as "a labor of love." This seems the most extraordinary pathologic development of the amorous instinct on record! For a man to love so constantly for sixteen years, embracing in that love eight-hundred-thousand persons at least, is certainly something almost beyond belief!

Dr. Billings has done the whole of literature, the whole of science, a great good by this unselfish work, which has been of the kind that builds up literature and science indirectly by removing obstructions and saving time. Let us give thanks also to his able coadjutors, to Fletcher, his learned colleague, to another friend who is with us to-night and who helped to read proof, to the indefatigable Chadwick, who, whenever any work is to be done of a public kind, is sure to be in the midst of it. This work will continue for generations and generations to be a benefit. It is a great national credit; an illustration of what a powerful and rich government can do; an illustration of the tact and sagacity of the men successively in charge of the Surgeon-General's office. It is a credit alike to the nation, to the corps to which Dr. Billings belongs, and to the medical profession.

Dr. Billings has been justly honored all over the world, having been made an Honorary Member of the University of Munich; a Doctor of Laws of Dublin and of the University of Edinburgh; a Doctor of our own Harvard, and a Doctor of Civil Laws of Oxford. It cannot be said that he has not received just recognition; indeed, with reference to Oxford, it is reported that he was recognized there in more than one way; that when he went up to Oxford to receive his degree, clad in red robe and purple gloves, the students, recognizing that there were some other qualities in him lurking under the solemnities, broke out in loud cries of "Josh Billings!"

The great lexicographer, Dr. Samuel Johnson, said that the life of the bibliographer was one of constant work without the least thought of possible reward; to escape censure was all that could possibly be hoped for. But if Dr. Samuel Johnson were here in this goodly company to-night—in his brown coat and brass buttons, after having swallowed enormous quantities of fluid, and eaten, as was his wont, like a tiger—he would think that, at the end of the Nineteenth Century, things were very much better, and that, in a new country, talent and ability and industry were duly honored. And if Dr. Billings were to choose one occasion of all his life that he would like best and most constantly remembered, I believe fully it would be this—to-night here among his friends, among men who have come from long distances, among his associates, who are all only too glad to do him honor. The memory of this meeting must, indeed, remain with him to the end of his days, and his children's children will tell each other of to-night.

DR. S. WEIR MITCHELL then said that after hearing how good a speech a man could make who was altogether unprepared, they would hear how bad a speech a man can make who is entirely prepared. He alluded to Dr. Da Costa's reference to the great power of a government to assist a noble project, such as Dr. Billings has brought to a satisfactory conclusion, and remarked that it was a pity that our republican form of institution lacked all methods of systematic remuneration for any man except the soldier and the lawyer, to both of whom it can give promotion, high place and reward, though they may have done little in comparison to that which has been done for mankind by two score men at this table to-night.

He spoke of a dinner attended in London as far back as 1853, when he dined with "several reasonably obscure people"—a Mr. Jenner, a Mr. Paget, a Dr. Quain, also a Mr. Carpenter, who was then rising into note and was older than the others. The speaker commented upon the fact that all of the men named are to-day, or have been, baronets; that all of them have been attendants upon members of the Royal family—all on the Queen, he thought; that all were decorated in some way, Knights of the Bath, etc. This he contrasted with the practice in our own country, where there are no fitting marks of distinction to point out to the mass of mankind who are the best, and to indicate this in some formal way. In this connection he said: "When I think of the work that has been done by men like Flint, Da Costa, Osler, or of lives like those of Atlee or Sims, or of what my friend Welch has done in pathology, or the brilliant achievements in surgery of a man like Henry Bigelow, or of the recent distinguished addition to the despairing surgery of the prostate—I mention no name—and know how small are any but the commercial rewards, which are surely the smallest for this sort of thing, it makes one feel that there is nothing for us to do except occasionally to meet together as we are now doing, to say what we think about men like the honored friend of many years, whom we have here to-night as guest."

He referred to a recent meeting of the National Academy of Sciences, at which, for the first time in the history of that association, it took courage to say to two of its members: "You have done noble and great things, and we wish to congratulate you upon them." It turned on this occasion to Professor Lesley, of this city, and congratulated him warmly upon having finished the 124th volume of the Geology of the State of Pennsylvania; it turned to Dr. Billings, getting a little ahead of us, and congratulated him on the noble library which he created, and the catalog which he has just brought to satisfactory completeness. Neither has the profession of medicine shown any tendency in its societies or in its central association to point to its greatest men and thank them in any manner or in any way. This should have been done long ago for more than one who has gone unthanked to the world where all accounts are settled.

Dr. Mitchell read extracts from a number of letters received from Great Britain and the United States, speaking in the highest terms of praise of Dr. Billings' work.

"There was but one hitch in all this," he said. "My friend, Dr. Lauder Brunton, having collected a very con-

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siderable sum in and about London, sent me a draft which was drawn to the order of Samuel Weir Mitchell. Now the bank refused to pay the draft, because that is not my name, and when I came to inquire as to how it was that my old friend had made this mistake it turned out that in this great catalog of Billings, where there are no mistakes, my name is written Samuel Weir Mitchell!

"I am not going to say anything about the character of the work done which brings us here thankfully to-night to represent about 250 of the members of the profession in America and Great Britain. You have been told in language better than I can use what is the reason of our meeting. It becomes now my pleasant duty to place in Dr. Billings' hands the gift of a silver box which contains a check for $10,000, and which has engraved upon it, 'To John S. Billings, from 259 physicians of the United States and Great Britain in grateful recognition of his services to medical scholars.' On the side of the box there is, in Latin, a statement to the effect that he who has made a catalog of a great library has created a memory of the wisdom and learning of the past.

"In offering this box to my old friend, and the gentleman you desire to honor to-night, I would say that while the silver box contains this practical recognition of his services it also contains something more, as my imagination figures it. You all remember that phrase of Dr. Johnson's, 'Wealth beyond the dreams of avarice.' There is, as I think of it, within this box, for an imaginative man, that wealth which represents the good feeling, the friendly opinions, the thankfulness, of the scholarship of two continents. Also I may say that this wealth represents a noble avarice, of that kind which my friend has shown all his life—a desire to be loved and respected by those in our profession whom men most rightly honor."

DR. JOHN S. BILLINGS said: "I think that not the most eloquent speaker among you would feel himself at all able to make a fitting reply to the addresses to which you have just listened. It is impossible for me to do so, and I can only say that I thank you all from the bottom of my heart. To judge from my own sensations, that is not going very deep, because to me my heart seems at present to be in the neighborhood of my larynx.

"Of course, in this honor I am, in a way, but a representative, a large part of it being due to individual personal friendship and good will. The work has been rendered possible by the cooperation of many men working for many years, and a very large number of those men I see around this table. Besides, a very large part of this has not been due to individual merit, but, as you know, to opportunity."

Dr. Billings referred particularly to the cooperation of Dr. Chadwick and Dr. Fletcher. He explained that early in his medical experience he had occasion to look up the literature on the subject of the surgical treatment of epilepsy, and he was unable to obtain French journals to verify references. A canvass of New York, Philadelphia, and Boston, only resulted in obtaining one-half the journals, and Dr. Billings conceived the desirability of a library where all information of this character could be obtained. After the war, being placed on temporary duty in the Surgeon-General's Office, it seemed to him a very judicious time to get together some books for the library. At that time there were only two bookcases in the office which constituted the library. The long and arduous difficulties and labors attendant upon the enterprise before it reached assured success, as also in establishing the catalog, were briefly recapitulated by the speaker.

"As to this gift, I accept it in the spirit in which it is given; I cannot yet say how it shall be used. It represents power; it represents the power of getting knowledge; the power, perhaps, of developing knowledge and increasing it. I will endeavor to use it in a way that will perhaps be satisfactory to those who have contributed it.

"In conclusion, gentlemen, I beg of you to accept my warmest and heartfelt thanks, and the assurance of my appreciation of your kindness."

The Chair then called upon DR. J. R. CHADWICK, of Boston, who said:

"Before fulfilling the role which you have assigned to me of alluding to the merits of Dr. Billings' able collaborators in carrying out the stupendous work of which we meet to celebrate the completing, I want to testify to the gratification that we New Englanders always have in gathering to do honor to your distinguished men. I am here reminded of the words of a famous orator, Rufus Choate, of Boston, in addressing a similar audience in this city many years ago. 'It gives me great satisfaction,' he said, 'to honor, by my presence here to-night, the two most distinguished sons of Pennsylvania—Benjamin Franklin, of Massachusetts, and Robert Morris, of New York.' May I not add another to the galaxy in naming Dr. Billings, of Washington? This phrase may be interpreted in more than one way, but I prefer to assume that the orator meant to imply that you had the discernment to recognize the merits of genius wherever found, and the ability to offer them such inducements as would lead them to become citizens of this metropolis.

"As Librarian of the Medical Library of Boston, and a warm personal friend of Dr. Billings, I have had many opportunities of appreciating the rare combination of qualities in Dr. Billings which has fitted him to conceive the task of creating from a very small nucleus the immense library over which he till recently presided, and then making an index-catalog of it more comprehensive in scope and more perfect in detail than any catalog hitherto made in any special branch of science. In proof that this praise is none too great, I would call your attention to the reasons emblazoned in letters of gold upon the honorary degree conferred upon him by the University of Munich (the translation from the Latin is mine):

"'A man who deserves of his country and of literature the highest praise, not only for his numerous important writings on the relations of physicians, on the proper construction and administration of hospitals, on the public health in the United States according to the precepts of the science and art of hygiene, on the preservation and improvement in the health of the army, but also for the great collections thereto relating, which he has established and extended; a man, who in the *Index Medicus*, of which he is editor, includes, by indefatigable industry, all the branches of medicine that are being advanced throughout the whole world, who, also, as author of the book that is entitled the *Index-Catalog* of the Library of the Surgeon-General's Office, United States Army, which, by the remarkable munificence of those who control the Government of the United States, has

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been laid before an immense number of learned men, has entitled himself to the gratitude of physicians and students of history throughout the whole world, and has built for himself a monument more lasting than brass.'

"All who consult this catalog can perceive its merits; but few can appreciate the incessant labor bestowed upon it by Dr. Billings; no one, in fact, who has not, as I have, had the privilege of being his frequent guest during the past sixteen years and seen him sit down night after night at eleven o'clock with a pencil in his hand and a huge basket of current journals in all languages by his side, and, taking up one after another, run his eye over every outside and check those that were worth cataloging—about four out of every five. This is but one of the many stages in the work to which he gave his personal attention.

"It is not for me to be his panegyrist on this occasion; but there is one direction in which his influence has been felt throughout the length and breadth of the land which others might fail to note. I allude to the extent to which the formation of the Library of the Surgeon-General's Office and the publication of its catalog have stimulated the formation of medical libraries in every large center of population. This in itself entitles him to the gratitude of this and future generations of medical men.

"One of the most valuable of his many qualities has been his common-sense. 'He is like a pin,' to use a Frenchman's simile, 'in that his head prevents his going too far.' His knowledge of men and his ability to secure their enthusiastic cooperation form the secret of much of his power. For instance, he not only despoiled my private library of many of its treasures in the early days of our acquaintance, but persuaded me to listen with equanimity, when, as at the dedication of the medical library in Boston, he boasted of the fact publicly, and intimated that the experience had doubtless proved a valuable object-lesson for me as a librarian. Mr. Thomas Windsor, formerly Librarian of the Manchester Medical Library, in England, is another who has succumbed to his wiles, and from the beginning has sent box after box of medical rarities culled from his extensive private library, and this, despite the fact that he is the most inveterate collector and reader of books, and has a more intimate knowledge of their value than any living man. We are but types of his many victims.

"The effect upon the *Catalog* of this quality in Dr. Billings is made manifest by the ability and indefatigable labors of his subordinates. No one familiar with the workings of the library can help being impressed with the exactitude and unfailing courtesy of Mr. F. W. Stone, who keeps the books and carries on the multifarious correspondence; with the energy and executive ability of Mr. C. P. Clarke, who has general supervision of the clerical work; of the genial, cultivated persistence of Mr. Edward Shaw, who, despite his many years and independent fortune, labors early and late to complete the files of periodicals. I cannot repent my weakness in sending him from my private collection last year, after many years of solicitation, the number of the *Gazette de Jardine* lacking to complete the file of that journal, when I realize that it is to him chiefly, owing to such persistence, that the periodicals in the library now number 29,000 volumes, and is the largest collection of medical periodicals in the world. I have no personal acquaintance with the other employés, such as Mr. W. T. W. Moritz, who, as chief cataloguer, writes and revises the cards and compares them with the titles of the books; the late Mr. F. L. Apel, who was in charge of the library in 1865, then numbering 800 volumes, and who kept the library in order in the two little bookcases, and sent patients to the Providence Hospital; he subsequently became clerk and was specially useful in revising proof, owing to his knowledge of eight of ten languages; Mr. Hardy who, as successor to the late Dr. Wise, is curator of the books; and Mr. Watson, keeper of the unbound books.

"I have reserved to the last, in order to give it deserved prominence, mention of the name of Dr. Robert Fletcher as the most distinguished collaborator with Dr. Billings on the *Index-Catalog*, and the actual editor of the *Index Medicus*. As his qualification for this work is only exceeded by his modesty, I may be pardoned for giving a few brief biographic data.

"Dr. Fletcher is of English birth, received his medical education in Bristol and London, was married at the age of twenty-one years, and brought his bride at once to America, establishing himself in practice in Cincinnati, Ohio. In 1861 he was appointed Surgeon of Volunteers, served throughout the War of the Rebellion in the Armies of the West as Medical Purveyor. At the end of the war he became an acting Assistant Surgeon, and was assigned to assist Dr. J. H. Baxter in compiling the Statistics of the Provost-Marshal General's Office relating to drafted men, a work of great value for reference for anthropometric data, much of which value is due to the accuracy and general attainments of Dr. Fletcher. In 1877, after the publication of this work, he was assigned for duty in the medical library, where he at once became the chief assistant and received the title of Principal Assistant Librarian by Act of Congress in 1891. His mental equipment to fill the important functions of this position has been continuously augmented by the fact of his private studies, which have covered a wide field, ranging from the old English poets and dramatists to modern anthropology. As proof of his attainments he has given us desirable papers "On the Vigor and Expressiveness of Older English;" "The Poet, is he Born, Not Made?" "Medical Lore in the Older English Dramatists of the Elizabethan Era, excluding Shakespeare;" and in another field, "The New School of Criminal Anthropology." He has been President, successively, of the Anthropological Society of Washington, the Philosophical Society of Washington, and the Literary Society of Washington.

"In preparing the *Index-Catalog* his assistance has been of the utmost importance, the accuracy and typographic excellence of the volumes being entirely due to his careful and skilful supervision.

"It is fortunate for the medical profession that Dr. Fletcher will remain, in the future as in the past, the editor of the *Index Medicus*. When this important publication was started he took entire charge of the editorial work, and the excellence of this record of current medical literature is wholly due to his skill and ability. We know that its revival is assured. I trust that he will tell us fully of its present status.

"One word and I am done. When Dr. Fletcher was five years old, his father, who was a lawyer, had as a

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client a man possessed of a large landed estate, whose exigencies required that an insurance should be effected upon a young life. Dr. Fletcher then had the only necessary qualification, and his life was insured for a large sum. The premiums have been paid regularly ever since. During the time of Dr. Fletcher's active service in the field the premiums were doubled. When it became known in England that Dr. Fletcher was assigned to duty in Nashville, the premium was reduced to the former rate, on the ground that he was stationed 'in a walled and garrisoned town.' It seemed to me that this insurance must not be allowed to lapse, and I think that part of the funds in your hands, Mr. Chairman, should be employed to prevent the loss of this mascot. I propose a toast to Dr. Robert Fletcher of Washington."

DR. FLETCHER then said:

"I am somewhat in the position of a friend of mine, who, being in Alaska in the early days of that territory, was supposed to have been killed there. He returned, fortunately, to San Francisco, and, being a member of the San Francisco Academy of Sciences, he went to a meeting of that society, and listened with great interest to a most pathetic account of his career and untimely death. I feel somewhat in his position after having heard this very untimely obituary.

"I need not say with what pleasure I have listened to the various tributes paid to Dr. Billings. It is needless for me to add anything as to the merits of the particular work which he has been engaged in; but I can speak of it from a different standpoint from any of you—that of twenty years' daily intercourse with Dr. Billings, an intercourse characterized always by the gracious readiness he has ever shown to contribute to my insufficient knowledge.

"While the thought of a great index-catalog might have occurred to thousands of persons, there have been more than once attempts made to deprive Dr. Billings of the credit of the first conception, and, indeed, of some of the carrying out of the work connected with that index-catalog. I take the opportunity to say—and there is no man living who can speak more positively on that subject than I can—that I know positively that the first conception of this stupendous work, the planning of it, the arrangement, the classification—in short, the whole merit of it, are all due to Dr. Billings exclusively.

"My friend, Dr. Chadwick, has kindly associated my name with the *Index Medicus*, that fascinating romance of which you have all heard. It is right that I should say something on this subject. Some sixteen years ago this was commenced at the suggestion of a New York publisher. Later Mr. Davis, of Detroit, asked permission to carry it on, and it certainly has been a great credit to him and his generosity, for it was every year with a certain definite loss of money that he continued the publication; at length he tired even of that, and the journal ceased to be published last April. I think, on the whole, I was rather pleased, for I could go to the seashore without thinking whether appendicitis should be classed under diseases of the digestive system or under the surgical treatment of the abdomen. We all know that when a man dies it is astonishing how many men find out how much they thought of him, and how much they really valued him in his lifetime, although they may have done nothing to help him. So it was with the *Index Medicus*. In the pathetic language of Erin they said: 'Arrah, then, why did you die?' The result was that those who really wanted the journal continued were asked to subscribe for it on terms heretofore unheard of in the history of medical publishing. Instead of the minimum number of subscribers we have received so many that we have begun to decline additional subscriptions, so that I have the pleasure of stating that in January next the first current monthly number will be published, and another number, as soon as the material will allow of its being printed, will cover the entire space since the cessation of the publication last spring."

DR. A. JACOBI, of New York, being introduced, rather took issue with Dr. Mitchell's views as to the better position of the profession on the other side, and thought there was not much to complain of; that everyone in actual practice in this country attends sovereigns every day. Continuing he said:

"When you, Mr. Chairman, in your irresistible and pleasant dictatorial way, told me a few days ago that I should be one of those who would speak here, I meekly submitted to what I prefer to call *your* fate. Originally I had expected to be on what you have seen mentioned in the books as a Weir Mitchell treatment, with ample rest, good feeding, and the most pleasing silence. But you willed differently, and I, 'cedo majori,' speaking for New York last, least, and briefest.

"I look upon to-night's gathering as a manifestation of great moment. As a rule, a professional man's reward for long-continued work and meritorious services consists in the universal but silent recognition of his labors. We do not, as they do in monarchical states, attach long-winded titles to his honored name; nor do we ornament his coat with insignia and decorations; nor are there many instances in which his distinction and the veneration felt for him are substantiated by a calligraphically written and embossed address or other documentary evidence. To-night, however, many of us have assembled for the purpose of proving both to the profession and the public some proof that his colleagues love to publicly honor a great and good man, whose efficient work medical men all over the world have long learned to appreciate. I trust the notoriety of this occasion (I wish there were many of the kind) will prove to the community at large the existence of the public spirit which prevails in the bulk of the medical profession and of good will toward a deserving colleague. The jealous and mercenary spirit of a commercial era must not and does not enter into the ranks of a scientific and ethical brotherhood. That spirit may be natural and congenial to the stock-exchange, the labor-market, and industrial enterprises; but—'quod licet bovi non licet Jovi'—it does not govern the motives of the most humane of all the professions. Nor is this exhibition of the spirit of the profession without its reward, for the esteem the medical fraternity is commanding among the lay world stands in due proportion to the regard we evince for ourselves, for each other, and for our achievements, rights, and duties.

"The last take the first rank in the minds of whomever looks on himself as one of the cells constituting the living organism of science and of society. Therefore, appreciating my own duties, I try to read in the soul of our guest; unless modest to a fault, that he has the right to claim that there is no man who has been more active in

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the service of the profession, and through the profession to all countries. Not a year of his life but has been filled with the results of the labors of an always seething brain. Fortunately it was warmed by a generous heart and sustained by great physical powers. Thus only was it possible to know and amass books, old and new, to gather and systematize specimens, to write history, prepare censuses, exhibit statistics of the greatest value, organize the *Index-Catalog* and the *Index Medicus*, and the Medical Museum, and always to combine the powers of a savant and of an administrator. . . .

"All of the latter are wanted in his present position. Hygienic institutes will henceforth require the best talent of the land. Modern and future medicine must rest on biology and hygiene, including as these do bacteriology. Thus far practical surgery has reaped the most beneficent harvest from their labors. Internal medicine has just begun to participate in their blessings. Antitoxins are to take equal rank with antisepsis and asepsis. Thus laboratories are the most efficient agents, both curative and immunizing, that is preventive. And the best minds should be placed at the head of the institutions destined to render experimental research subservient to suffering mankind. From that point of view I was not sorry to learn that Billings gave up his unique position in Washington to charge himself with the direction of his laboratory of hygiene. He is more than eminently qualified; for not only the best minds are required for such places, but the stoutest hearts also. A position like his is no longer a mere office; it becomes a mission. Modern medicine shares both in its objects and in its methods the dangers of a gospel. It is our present exact experimental methods that are constantly assailed by the obscurists of all countries and all stations in life. They have succeeded in almost crippling English physiology and pathology by depriving the most objective and brightest observers of any nation of the means of systematic experimentation. In our country we have had to to exercise constant watchfulness over legislatures and wary lobbyists to ward off contemplated blows against the liberty of scientific research; and the last reports carry the news of a new onslaught along the whole line. Strong conviction, eternal watchfulness, and stout resistance of closed ranks will be required to fight and defeat the sickly sentimentalists who shed tears over a rabbit while staring in stupefaction at the epidemics of preventable diseases, which slay humankind by the hundreds of thousands, and call it a dispensation of Providence. In the imminent combat against misled ignorance and semi-instructed and opinionated fanaticism, we shall require not only universal cooperation, but also the strongest voices fit to be heard in the uproar of the battle. Such a Diomede you have secured for Philadelphia. Show us many more, so as to at least convince the millions that the world of the future should belong to man and not to rabbits, guinea-pigs, and horses.

"We should not imagine that victory will be easy; even an attack once repulsed affords no security. It is a pity that this should be so, but this uncertainty must be borne along with the blessings of our political and social habits, of which it is the direct result. Individual, political, and social life cannot be at rest and settled forever in a progressive community. We are used to unceasing agitation. Constant motion clears the atmosphere; perpetual turmoil the stagnating waters of the ocean; and it takes a restless and never-pausing circulation in protoplasm and cells to preserve the health of organic life. Thus, if we must fight, let us do so with the conviction that through fighting only in accord with what we forever see in living matter can we work out our salvation and that of mankind. It is certainly true, as the great German proclaimed, that he only earns both liberty and life who conquers them on every one of his living days.

"I came near forgetting, however, that I am speaking before my betters, recognized masters in modern medicine, and, I trust, just as conscientious citizens of the political republic as they are leaders in that of science. There is no use carrying owls to Athens, or to speak of the duties of the medical profession to the successors of Rush and Physick. The mention of these illustrious names carries me back to where I started, to Philadelphia.

"What shall I say of and to Philadelphia and of this grand demonstration of hers, for hers it is? From what I know we should not be here without her having taken the initiative. It is but just that she should have done so, for indeed she is equally interested with all of us, and the gainer by far for gobbling up the guest of the evening as her own immediate property. She reminds me in part of what William Sterling in his life of Charles V says of Austria: "Bella gerant alii tu felix Austria nube—let others fight, Austria makes her fortune by marrying." So Philadelphia enriched herself by having Billings wedded to her. Still let us be just and admit that she never was a mere receiver and that he made no contract with a mean spouse. From the time of Benjamin Rush to the present, American medicine found a home and fertile cultivation in Philadelphia, and not a few of her medical citizens have been Rush's successful rivals in all his exertions and achievements. That is no mean praise if you refer to what is said of him in *A Century of American Medicine*, by Edward N. Clarke, Henry I. Bigelow, Samuel D. Gross, T. Gaillard Thomas, and J. S. Billings. In the article on 'Practical Medicine,' written by Clarke and R. H. Fitz, Benjamin Rush is called 'a devoted enthusiast in his profession, an ardent patriot, a lover of liberty, eminent as a physician, distinguished as a philosopher and a scholar, who, holding a high social position in the community, contributed largely to raise the profession of medicine in the estimation of the community in which he lived, and of the whole country.' I am anxious to add that this very day the ranks of Philadelphia's great physicians contain more than one man to whom that eulogy bestowed on Rush would be but a just tribute. Thus, while she may be envied because of her securing Billings, she offers no mean gift to the newcomer.

"And now a word about this newcomer and old friend. At the close of my remarks I mean to become quite personal and tell a story. Those who know me well are aware of my not commiting many sins of that kind. I am even suspected of knowing no stories at all. But there are a few in my repertory, and their beauty consists in their being true—some of them. Now, there was a letter written fifty years ago, somewhere in South America. It bore the address, 'Alexander Humboldt, Europe.' That letter was not slow in finding the little great man in his side street in Berlin. In the same way the honored guest of the evening is called by me and all of us 'Billings,' not even Dr. Billings. Not in my

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most melancholic dreams did it ever occur to me that he would condescend to descend to our level. I say our level, for I am afraid there are but few here so distinguished as not to be professors. Most of us, I fear, *are* professors, more or less. And Billings is one of us now, I am told. But I need not be told that he will remain big enough to require no title additional to that which he carried in Washington. That title was 'Billings.' And I also know that when in Europe—which, after all, is also a part of the world—and the rest of the continents, men whom we all know and revere count the very best names of all countries, one of the few will be 'Billings, of America.'"

DR. WILLIAM OSLER, of Baltimore, being called upon, said:

"I have to make the very pleasant announcement that though Dr. Billings has left Washington, and the Army Medical Museum and that the Army Library will know him no more as we have known him there, yet his counterfeit presentiment is to appear on the walls of the library. A sufficient fund has been raised to have Dr. Billings' portrait painted, and it will be presented to the Army Medical Museum."

Dr. Osler read a letter from U. S. Surgeon-General George M. Sternberg, expressing pleasure at the fact that such a handsome sum had been raised for Dr. Billings, and that his portrait was to be painted by an artist of ability, adding that the portrait, when completed, would be gladly received.

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***Dr. John Ridlon*** has been appointed Orthopedic Surgeon to Michael Reese Hospital, Chicago.

***Prof. Riedel***, of Jena, has been elected to the Chair of Surgery at Göttingen in succession to Prof. König.

***Illness of Dr. James E. Reeves.***—The many friends of Dr. Reeves will be grieved to learn that he is seriously ill.

# SOCIETY PROCEEDINGS.

## *SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.*

*Eighth Annual Meeting, held in Washington, D. C., November 12, 13, and 14, 1895.*

FIRST DAY—NOVEMBER 12TH.

*Morning Session.*

The Association met in the banquet-hall of the Hotel Shoreham at 10 A.M., and was called to order by the President, DR. L. MCLANE TIFFANY, of Baltimore, Md.

DR. H. C. BUSEY, of Washington, delivered an

ADDRESS OF WELCOME,

on behalf of the medical profession of the District of Columbia. In his closing remarks Dr. Busey said:

"I solicit your aid and cooperation in our effort to secure the protection of our people from the horde of impostors and charlatans which you have driven from your borders by the enactment and enforcement of medical-practice laws, and which has made the District of Columbia a common rendezvous where the most atrocious methods of the charlatan and mercenary impositions are openly and flagrantly committed, to the wrong, injury, and robbery of its citizens. You represent the most influential and intelligent class of suffragists for whose aid on the hustings and at the polls we plead.

"To state the deplorable condition of this District fully and broadly, there are five medical schools and several medical societies chartered by acts of Congress, or under the general incorporation-law authorized and empowered to license persons to practise the art and science of medicine, without any uniform, and by some without any standard of qualification beyond the ability and willingness of the applicant to pay the required fees, or give promissory notes for such payment; and under the provisions of the general incorporation-law any dozen of persons can obtain a charter upon payment of the fee for recording of the same, authorizing them as a body corporate to confer the degree of M.D. at their pleasure and will. Such is the status of this Federal territory, which is under the exclusive jurisdiction of the highest tribunal of legislation in the land, made up of the Representatives and Senators from forty-nine States and Territories, which have enacted medical-practice laws for the protection and welfare of their citizens. Take these facts home with you, and reecho them throughout the length and breadth of the land, that such criminal neglect, not less disgraceful and scandalous than the slums of vice, may not continue to afflict the citizens of the Federal territory."

PRESIDENT TIFFANY then responded to the Address of Welcome for the Association.

After some announcements had been made by DR. JOSEPH TABER JOHNSON, of Washington, Chairman of the Committee of Arrangements, the reading of papers was taken up.

DR. BEDFORD BROWN, of Alexandria, Va., read a paper entitled

PERSONAL EXPERIENCE IN THE TREATMENT OF STAB-WOUNDS OF THE INTESTINES AND PERITONEUM.

He stated that about 130 cases of stab-wounds of the peritoneum and intestines had come under his care dur-

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ing his entire professional experience in both private and military practice. In less than one-third of the cases the intestines were wounded. It was considered a little remarkable that there should be such a disproportion in the number of intestinal wounds in these cases; in other words, it is a singular fact that in a large majority of abdominal wounds the intestines escape injury even when such wounds are extensive. Transverse and longitudinal stab-wounds of the intestines were then considered at length. Dr. Brown regards the saber-wound as one of the most dangerous in its immediate and remote results. If the edge and point of the saber are sharp the wound inflicted is large and deep. The weapon cutting through the intestines and mesentery, usually passing through the abdomen, severs large bloodvessels, and causes frightful hemorrhage, which is speedily fatal. He had only seen three saber-wounds of the abdomen, and they ended fatally in a short time. The stiletto is a dangerous instrument, as it almost invariably enters the intestine or other organ. It does not kill by hemorrhage usually, but makes an opening in the intestine sufficiently large to permit the escape of a small quantity of fecal matter, causing septic inflammation. It is one of the most difficult of all intestinal wounds to detect.

The diagnosis of intestinal wounds was then dwelt upon, reference being made to Senn's hydrogen-gas test to detect wounds of the intestine. While Dr. Brown considered it a useful test, in remote sections of the country far from large cities and towns it is not practicable because of the impossibility of procuring the apparatus and generating the gas. In all abdominal stab-wounds his rule has been, after cleansing the hands and thoroughly disinfecting them, to insert the index-finger and explore the intestine to ascertain if there is an opening. In certain cases a wound may exist in the intestine, but it may be so small as to escape detection. But if the intestine is wounded, whether we can insert the finger or not, there is always more or less extravasation of fecal matter and gases, and if the finger comes in contact with this matter it is certain to retain for some length of time the peculiar odor of human feces. This will always afford positive evidence of an intestinal wound.

In treating simple wounds of the peritoneum it has been Dr. Brown's rule to close them with silver-wire sutures, after thorough disinfection. Formerly these wounds were closed regardless of antiseptic measures, except that the wound was washed with hot water and soap. On the battlefield and in field-hospitals wounds were washed with any water that was convenient, and were not washed at all when water could not be obtained. Previous to the introduction of antiseptic treatment in dressing wounds but little attention was paid to the condition of the instruments, sutures, sponges, and dressings, except the practice of ordinary cleanliness, and the percentage of cases of healing by first intention of simple wounds of the peritoneum was large. In dressing simple wounds of the peritoneum scrupulous attention should be paid to the laws of cleanliness. In treating wounds of the intestines two vital procedures are necessary: 1. Complete and thorough closure of the intestinal wound; and 2. Cleansing the peritoneal cavity of all fecal matter, blood, and gases escaping from the intestine.

Dr. Brown then described a simple method of reducing a protruded intestine in stab-wounds. He takes two long, slender, curved needles, threaded each with a silken cord 10 or 12 inches long. One of these needles is passed midway through the margin of the wound, the other through the opposite margin; and then each is tied in a separate loop. These cords are drawn in opposite directions by two assistants, upward and outward, firmly and tightly. By this means the wound is made to expand or gape widely, and at the same time the walls of the abdomen, for a large area around the wound, are considerably elevated above the intestines, while the patient reclines in the dorsal position, and a considerable vacuum is in this way created, and the intestines will glide back without force or manipulation to fill this newly created vacuum.

DR. RICHARD DOUGLAS, of Nashville, said that in peritoneal wounds we always have a mixed infection, which is more serious than infection with the colon-bacillus alone. Peritonitis, whether local, adhesive, general, or septic, should be considered of germ-origin. In closing the abdominal wound the peritoneum should always be approximated, as by so doing we lessen the danger of hernia.

DR. C. A. L. REED, of Cincinnati, expressed himself as being apprehensive about mere exploration with the finger to detect stab-wounds of the intestines. However erudite the tactile sense of the surgeon may be, at times it proves misleading, and, therefore, in certain cases it is exceedingly important to enlarge the original wound, so that part of the viscera lying immediately beneath it should be brought out and carefully inspected. He believes with Dr. Douglas that the peritoneal margins should be carefully approximated.

DR. JAMES EVANS, of Florence, S. C., related an instance in which nine men had received chest-wounds by bayonets during the war, the bayonets having been previously stuck in the ground, and yet all of the men recovered. He attributes their recovery to the form of wound made by the bayonet. In another case, a man had been shot within half an inch of the navel. He had no rise of temperature; yet when the doctor saw the patient the omentum had extruded to the size of both his hands. A double ligature was applied, a piece of adhesive plaster applied over the surface, and the man recovered. Dr. Evans had frequently seen gunshot-wounds of the abdomen during the war, in which there was extravasation of fecal matter through the wound, but unaccompanied by shock.

DR. A. VANDER VEER, of Albany, has always made it a practice to first inquire carefully as to the kind of weapon with which the wound had been made. He had seen several wounds inflicted by bayonets during the war, but did not remember having seen the intestines or stomach penetrated. There should be no delay in treating stab-wounds. The surgeon should act promptly and not wait for symptoms to develop. Just as a case of perforative appendicitis will terminate fatally in a short time, so will stab-wounds of the intestinal tract, unless timely interference is resorted to.

DR. HUGH T. NELSON, of Charlottesville, Va., said that the necessity of enlarging the abdominal wound, under all circumstances, was an imperative one. Four years ago he saw a case in which the small bowel was wounded by a knife and the patient refused operation

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for twenty-four hours, believing that this viscus was not cut. The symptoms became alarming and the patient finally consented to have an operation performed. Dr. Nelson opened the abdomen by a long incision, finding it impossible to remove from the peritoneal cavity the extruded contents of the bowel, owing to the fact that an adhesive inflammation had taken place and had agglutinated them to the bowel so firmly that he could not wash them away. He attempted to resect the peritoneum into the pelvic cavity where the fecal matter had burrowed, but could not do so. Peritonitis became general and the patient died. The sooner the abdominal incision is enlarged in stab-wounds the better.

DR. GEORGE ROSS, of Richmond, Va., asked whether there was any way to distinguish between the symptoms of nervous shock and shock due to hemorrhage.

DR. BROWN replied that one of the most unerring symptoms was rapid reduction of temperature, although there is no symptom that will enable the practitioner to distinguish accurately between the different forms of shock except the gravity of the condition.

DR. W. E. B. DAVIS, of Birmingham, desired to speak upon the point in reference to injuries of the gall-bladder. The essayist referred to the fact that injury to this viscus would produce a septic peritonitis. He thought that an injury that would produce peritonitis would speedily result in death if there was a large escape of bile into the peritoneal cavity, but he does not believe it is a septic peritonitis. In the majority of cases the shock following abdominal injuries is due to hemorrhage, and that hemorrhage plays a more important rôle in the production of symptoms in intestinal injuries than has been believed. In fact, it was the hemorrhage from these wounds that frequently caused death.

DR. JOHN D. S. DAVIS, of Birmingham, expressed himself, in regard to the diagnosis of intestinal wounds, as having very little confidence either in Senn's hydrogen-gas test or the flushing method spoken of. He had seen perforative wounds of the abdominal viscera where it was impossible, from their character and location, to flush the abdominal cavity through the opening sufficiently to thoroughly clean it. In addition to the three forms of shock mentioned there should be added the shocks of sepsis.

DR. BROWN, in closing, agreed with Dr. W. E. B. Davis that all cases of violent or dangerous shock were due to hemorrhage. In regard to approximating the peritoneum, he had always left it untouched in closing simple wounds in the abdominal wall, and had found the practice a good one.

(To be continued.)

# CORRESPONDENCE.

## WHAT IS THE VALUE OF OUR MEAT-INSPECTION?

*To the Editor of* THE MEDICAL NEWS,

SIR: The butcher of the University Hospital at Ann Arbor, Mich., recently called my attention to a beef-liver just received with a lot of other meat from a large meat-firm. The surface of the liver showed numerous irregular or stellate scars, up to two inches in diameter. Beneath these the tissue was dense. On section we found calcified cysts scattered through the liver. These varied from 0.5 cm. to 2 cm. in diameter, had firm walls, and were filled with dark, gritty material. All the cysts were old; no evidence could be found as to the origin of the cysts. The cysts were so numerous that a section could hardly be made through the liver without revealing one. The liver could not be looked on as dangerous to the consumer. It was not, however, inviting. It raises, I think, the question at the head of this note. Every quarter of meat received from the firm concerned bears a seal, attached to a card. The latter has on it the legend, "United States Department of Agriculture, Bureau of Animal Industry. Inspected Meat. J. Sterling Morton, Secretary." There is also a number and a letter stamped in red ink. If lesions such as were found in this liver are overlooked, how can we suppose that trichinæ, measles, or tuberculosis can be discovered by the so-called inspectors? Does not the use of the card under the circumstances tend to create a false sense of security, or is the matter one in which the public takes no interest?

Respectfully, GEORGE DOCK.

ANN ARBOR, MICHIGAN, Nov. 11. 1895.

## THE EVERLASTING "GOLD-CURE."

*To the Editor of* THE MEDICAL NEWS,

SIR: I enclose a document which may have already reached you. You will notice the improvement in moral methods indicated by the circular. This gentleman proposes to have the physician who purchases the right to use the "cure" do his own lying. Hitherto this has been done wholesale, so to speak, and by institutions benevolently chartered for that purpose.

Yours very respectfully,

JOHN K. MITCHELL.

PHILADELPHIA, November 15, 1895.

[COPY.]

DEAR DOCTOR: We ask you to give the following careful consideration, knowing that the greater portion of advertising literature is thrown into the waste-basket. We have a proposition to make you, which we think should not even be "pigeon-holed," but rather considered as a good thing for your adoption:

All medical journals for years past have teemed with discussions, *pro* and *con*, on the subject of gold-cure for alcoholism. Physicians have as a rule antagonized this method of treatment, mainly from the fact that the drugs employed and the conditions imposed in these cases have been withheld from them as a body. The number of patients treated successfully by the various methods under the name gold-cure have forced the medical world to the conclusion that conditions, not theories, confront them. A leading manufacturing chemist prepares an article after a certain secret formula; he advertises through the medium of medical journals that his preparation will cure certain maladies; the physician is given knowledge of the remedy, uses it, finds it efficacious, and adopts it in his practice.

The gold-cure formula is a closed door to the medical fraternity. Pronounce the "open sesame," place it in their hands with full instructions for use, and they are compelled as conscientious healers to use it in all cases of alcholism that may come to them.

Our proposition is as follows: Until January 1, 1896, we will furnish you with sufficient medicine (with directions for use) for the treatment of any number of cases of alcoholism at the nominal price of $10 each, on condition that you will charge each individual case not less than $75 for full twenty-one days' treatment.

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We shall be pleased to have you become interested with us; call at our offices at any time and you will be made welcome. Very sincerely,

——— ——— ———.

### PREVENTIVE INOCULATION FOR DIPHTHERIA.

*To the Editor of* THE MEDICAL NEWS,

SIR: In view of the fact that the diphtheria-antitoxin is a well-recognized agent, not only in the cure but even to a greater extent in the prevention of diphtheria, it seems to me that it would be very advisable to inoculate all children visiting public schools.

It is well known that as soon as the schools open in the autumn the number of cases of diphtheria immediately rises, and if the children were all protected this autumnal increase in the cases would hardly occur.

I see no reason why preventive inoculation for diphtheria should not be practised just as for smallpox, in cases in which large numbers of children are thrown in contact with each other. Yours truly,

B. M. BOLTON.

PHILADELPHIA, PA., NOV. 21, 1895.

## NEWS ITEMS.

***Football-incidents.***—The members of the University of Pennsylvania Football Team, together with a host of substitutes and Woodruff, the coach; Leaman, the manager; ex-Captain Knipe; Bryan, the trainer; a cook and two "rubbers," departed this afternoon for the Berkshire Hills, where they will stay until they meet Harvard, at Cambridge, on Saturday.

Yale composers are busily engaged in the preparation of football-songs, to be sung at the Princeton game at Manhattan Field, New York, next Saturday. Three songs have been selected, and they will be sung by the mass of Yale students and sympathizers, led by the crack glee club.

One of the songs is sung to the air of "I Can Knock, Oh, No." It is as follows:

The Princeton tiger's stripes, they say,
Are orange and coal-black;
They run in fancy diagrams
All up and down his back.
But when he strikes old Eli's team
He'll find it sad but true,
That the only stripes upon his back
Are black and blue.
I can knock, oh, no,
I can knock, oh, noke,
I can knock, oh, no.
Yale.

[*New York Herald* of November 20th.]

During the third scrimmage, as the Wichta team were shoving their captain through their opponent's rush line, Jenne fell, and in an instant both teams were on top of him. His head was bent under his breast, and in this position he remained for over a minute. He was picked up unconscious and carried off the field. When he regained consciousness, after half an hour, he was unable to talk, and the discovery was made that he was paralyzed from the head down. He can hardly live through the night.

After the accident another man was substituted, and the game progressed until the end of the first half, when Captain Mason, of the Eureka eleven, was tackled while making an end run and fell on his face and was knocked into insensibility. He became delirious and had to be carried home.

As a result of the football-game at Decatur, Ill., Thanksgiving Day, between the Young Men's Christian Association, of Springfield, and the local team, William McGerron, one of the visitors, is likely to die. He went down in the scrimmage and the two elevens fell upon him. When they arose McGerron was unconscious. The attending physician fears he is suffering from concussion of the brain. McGerron's home is in Chicago, and he is private secretary of the State Treasurer.—*New York Herald*, November 30, 1895.

***Meetings of Philadelphia Medical Societies:***

| | Meets. | Next meeting. |
|---|---|---|
| Academy of Surgery, | 1st Monday of month, Oct.—June. | Jan. 6 |
| College of Physicians, | 1st Wednesday of month, Oct.—June. | Jan. 1 |
| Section of Gynecology, | 3d Thursday of month, Oct.—June. | Dec. 19 |
| Section of Ophthalmology, | 3d Tuesday of month, Sept.—May. | Dec. 17 |
| Section of Orthopedic Surgery, | 3d Friday of month, Oct.—April. | Dec. 20 |
| Section of Otology, | 1st Tuesday of month, Oct.—May. | Jan. 7 |
| Section of Surgery, | 2d Friday of month, Oct.—May. | Dec. 13 |
| County Medical Society, | 2d and 4th Wednesdays of month, Sept.—June. | Dec. 11 |
| Neurological Society, | 4th Monday of month, Oct.—April. | Dec. 23 |
| Obstetrical Society, | 1st Thursday of month, Sept.—June. | Jan. 2 |
| Pathological Society, | 2d and 4th Thursdays of month, Sept.—June. | Dec. 12 |

***Congress of American Physicians and Surgeons.***—At a meeting of the Executive Committee of the Congress of American Physicians and Surgeons, held in New York City, November 23d, the following officers were elected:

President of the Congress, Dr. Wm. H. Welch, Baltimore, Md.; Secretary of the Congress, Dr. Wm. H. Carmalt, New Haven, Conn.; Treasurer of the Congress, Dr. Newton M. Shaffer, New York City; Chairman of the Executive Committee, Dr. Landon Carter Gray, New York City; Secretary of the Executive Committee, Dr. Wm. K. Simpson, New York City.

The next Congress will be held at Washington, D. C., in May, 1897.

***The Revival of the Index Medicus.***—It is announced that the *Index Medicus* will be revived. The editors say further that "the replies to the inquiry made as to the preferred date of commencement of the journal have been overwhelmingly in favor of its continuance from May 1, 1895, thus making the work continuous. The first current number will appear in January, 1896, and it will be continued monthly thereafter. The preceding bibliography, from May to December, will be printed in one number (perhaps divided into two parts) as quickly as the large quantity of material will permit."

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# THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

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## ORIGINAL ARTICLES.

### *DIETETICS IN GASTRIC DISEASES.*


BY PHILIP ELKIN, M.D.,
OF PITTSBURG, PA.


THE means employed to combat diseases of the gastric apparatus may be summarized under three headings, dietetic, mechanic, and medicinal. Of these the dietetic are of primary importance. Nearly all pathologic states of the stomach imply a disturbance in either its motor, resorptive, or secretory function, or a combination of these. In the first and second it is usually in the direction of retardation; in the third we find diminished and heightened activity of the glandular apparatus of the stomach to be of equal frequency of occurrence. All abnormalities in the chemification of the food can be traced to either one of the preceding factors or a combination of them.

Wherever there is an inhibition of the motor power of the stomach, whether due to mere functional adynamia, as in atony, or to structural changes, as in dilatation or carcinoma ventriculi, the same principles of alimentation obtain, modified, of course, by the various chemic conditions present, as well as certain etiologic considerations. In this condition a restriction of the quantity of liquids and adherence to a solid diet mainly are indicated. Liquids in any considerable quantity further the relaxation of the stomach: 1. By their dead weight alone. 2. They do not furnish anything tangible on which the walls of the stomach can contract, as in the case of solids. 3. By their very fluidity they fail to make that impact upon the nerve-filaments of the mucous membrane which is so necessary for the production of peristalsis.

It is especially in dilatation, in which the resorptive function of the stomach suffers such marked impairment, that a strict adherence to the preceding principle becomes imperative. As corollaries of this principle must be added the consistence and preparation of the food, which must be such as not to be incompatible with tolerably easy digestion. As retardation in the motor function of the stomach is usually associated with alterations in the gastric secretion, the selection of a suitable regimen in any given case will have to be modified to meet the chemic conditions.

As a rule, whenever there is an appreciable retardation of the peristaltic function of the stomach we shall find also a concomitant diminution in the production of both free and combined hydrochloric acid. There is, however, one marked exception to this rule, namely, dilatation either idiopathic or due to stenosis of nonmalignant origin, as, for instance, in constricting cicatrices of healed ulcers. In these cases we will generally find a marked increase in the production of the normal acid elements of the gastric juice. In several cases of benign dilatation that have come under my observation, I found a percentage of 120 with $\frac{1}{10}$ normal alkaline solution, or somewhat more than twice as much as usually obtains in normal gastric secretion.

Again, we may have very marked hypersecretion in gastric disturbance of nervous origin, when there is present very little or no retardation of the motor function.

As the motor and resorptive phenomena of gastric digestion furnish us with the first principle laid down, which, for convenience' sake, may be called the physical principle of dietetics, in the same way the chemic phenomena of digestion furnish us with a second fundamental principle in dietetics, which may be called the chemic principle. This second principle may be roughly stated as follows: The administration of the albuminous, starchy, and saccharine articles of diet is to be regulated by the quantity of hydrochloric acid and ferments which the examination of the gastric contents reveals.

In the application of these two fundamental principles of dietetics, let us first consider those conditions characterized by a diminution in the production of hydrochloric acid and ferments and retardation of the motor function. To this group belong acute gastritis (frequently), chronic gastritis, certain forms of nervous dyspepsia, carcinoma ventriculi, and atony.

By selecting one of these conditions as a type for all, we may construct a paradigm of treatment which, with some slight inflections to meet certain conditions obtaining in each, we can apply with tolerable accuracy to all. Of the whole group, chronic gastritis offers by far the largest field for instruction in respect to dietetics.

*The dietetics of chronic gastritis.*—Whenever there is manifested a disposition to repeated attacks of acute gastritis, the condition known as chronic gastritis ultimately sets in. As chronic gastritis is associated with a progressive change in the interstitial elements


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of the stomach and a diminution in the acid and peptonizing elements of the gastric juice, which progress *pari passu* with the interstitial changes, our dietetics should conform to the degree of chronicity attained by the disease.

In the very first onset of chronic gastritis, when the disturbances in the functions of the stomach are slight, any considerable departure from the normal rule of diet is unnecessary. When, however, flatulence, eructations, a sense of weight and pressure, diminution of appetite, a disinclination for meat and other albuminous articles of diet denote a lessened activity in the secretory and motor functions of the stomach, the moment has supervened when it becomes necessary to contract the promiscuity of the ordinary bill of fare into narrower limits. The symptoms, both subjective and objective, and especially the examination of the gastric contents, must guide us in our choice of a suitable regimen.

When there is any appreciable diminution in the quantity of free and combined hydrochloric acid, together with diminished activity of the rennet-principle, as evinced in the slower and inefficient coagulation of milk to which a few drops of the gastric juice have been added, the careful selection and preparation of the albuminous articles of food are indicated.

In testing for rennet, we best proceed by adding a few drops of the filtered gastric contents to about 5 c.cm. of milk and setting aside the same in a thermostat at a temperature of about 100° F. If rennet be present, the characteristic coagulation will supervene in ten or fifteen minutes.

In the choice of animal food it is best to avoid those tough and fibrous varieties of beef that require a longer period for their disintegration. For this reason also "smoked" articles of food should be eschewed. Our choice should be restricted to calves' brains, sweetbread, the more tender parts of the beef, boiled ham, boiled tongue, hare, chicken, fish, and oysters, as requiring less time for their digestion. Eggs in any form are also suitable.

The preparation of the food is a nice point in dietetics. As a rule, boiled, baked, and stewed meats require less time for their digestion than when fried. As to the hydrocarbons (vegetables and farinaceous articles of food), those containing the least proportion of cellulose, and consequently leaving little or no residuum after digestion, are to be preferred. Potatoes, cauliflower, peas, turnips, wheat-bread, rice, and spinach should receive preference. Cabbage and celery should be eschewed; likewise raw fruits, apples, pears, etc.

In the advanced stages of chronic gastritis, when there is marked change in the interstitial elements of the stomach, causing a partial obliteration of the glandular elements, with a concomitant diminution in the production of hydrochloric acid and ferments, the most careful preparation of the food is imperative. In this stage the inclination of the patient will lean toward the farinaceous articles of food. Vegetables, such as potatoes, carrots, spinach, etc., should be eaten in the form of *purée*.

As in this stage the stomach responds but feebly in the digestion of animal food, the most careful selection and preparation in this respect are indicated. Beef especially, if partaken of, should be chopped or hashed.

Patients with chronic gastritis manifest a desire for hot and piquant condiments, such as pepper, mustard, pickles, etc. As these articles only serve to irritate the mucous membrane, but no more than a very moderate indulgence in them is permissible. On the other hand, a liberal quantity of salt is indicated, as it furnishes the material out of which the gastric juice is elaborated, and thus contributes to the formation of hydrochloric acid, of which there is such a lack in chronic gastritis.

In order to guard against the possible denutrition that may occur, owing to the marked disinclination of the patient for albuminous articles of diet, we would do well to include in our regimen such vegetables as peas, beans, and lentils, which contain a large percentage of leguminose (vegetable albumin).[1]

This scheme of diet for chronic gastritis will amply satisfy all the demands to be filled in cases of atony. As in atony there is very little curtailment in the production of the gastric juice, we may abate somewhat the severe restrictions which in advanced stages of chronic gastritis we place upon the albuminous elements of diet.

In cases of acute gastritis the let-alone principle is the best; a two or three days' rest for the overtaxed organ is all that is required to meet the conditions.

A word may be said here respecting the inhibition of the gastric functions of nervous origin. As a rule, any attempt on the part of the physician to erase the discomforts of the patient suffering from nervous dyspepsia, by the regulation of the diet, will prove unavailing. It is surprising in these cases how the heaviest articles of diet are borne without the slightest discomfort, when the lighter articles of food, even milk, will be intolerable. The best rule of dietetics to be followed in these cases is to submit to the idiosyncrasies and inclinations of the patient.

It remains for us to consider in how far we can utilize the scheme of diet laid down for chronic gastritis in cases of carcinoma ventriculi.

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1 "That legumin constitutes not only a nutritious article of diet, but also suffices for all the demands of nutrition as respects the nitrogenous metamorphosis, is evinced by the experiments of Rubner on an adult in whom, by the administration of 520 grams of peas, all the demands necessary to preserve the equilibrium of the nitrogenous metamorphosis in the body were satisfied." Quoted from Munk, Uffelmann, Ernährung.

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So long as the glandular apparatus exhibits a tolerably fair activity and the motor insufficiency is not so marked, we may with advantage employ a diet such as is indicated in advanced states of chronic gastritis. Milk, containing, as it does, a considerable percentage of albumin in a digestible form, will aid much to support the nutrition of the patient.

As the diminution in the production of hydrochloric acid progresses, the farinaceous articles of food will be found to agree best with the patient. As the early supervention of motor insufficiency is one of the characteristic features of carcinoma, the most scrupulous care in the preparation of the food is necessary. Alcohol in the form of cognac or port-wine is of service in supporting the nutrition of the patient. Fat, in the form of good butter, is not contraindicated. Cacao and chocolate because of their high nutritive value do good service.

When the ferments show a very slight or negative reaction we may render the food somewhat more digestible by the process of peptonization. Peptonized milk and gruel may in this way be administered to advantage.

With the Germans the preparations known as "Leguminosen" are held in high repute on account of their large nutritive value. I have myself, in my clinical experience abroad, seen very good results from the use of these preparations in diseases of the alimentary canal attended with impairment of nutrition.

When the motor power of the stomach exhibits a marked degree of impairment, the nutritive demands of the body must be satisfied by rectal alimentation. As the prognosis in carcinoma ventriculi leads to but one inevitable result, all that can be accomplished by alimentation is to support the nutrition, and in this way postpone the final catastrophe.

821 WYLIE AVENUE.

## PHIMOSIS IN CHILDREN.

BY WILLIAM MARTIN, M.D.,
OF BRISTOL, PA.

THE only apology I shall offer for bringing this subject before the profession is that its frequency as a factor in children's diseases warrants it. Although no doubt thoroughly understood from all its various standpoints, I feel justified in emphasizing the necessity of more care in examination of children, when such conditions are the possible cause of many of the reflex symptoms from which these children suffer, and which seem so difficult for us to locate when called upon to prescribe.

Phimosis is looked upon as a natural condition in children, and to a certain extent it is so; but in the average practice there are, no doubt, many such apparently normal conditions that act as the sole cause of ills that are difficult to trace. It is generally said that if the glans can be partially uncovered during early infancy, the normal condition is assured later. In many cases this may be true. The time for operation is said to be when the preputial meatus is barely sufficiently large for purposes of urination; yet even in this condition it is not infrequently left to nature to perform what the knife should do, and I do not hesitate to say that many physicians do not think to examine for phimosis in infants, and only operate when compelled to do so by urgent symptoms or by the persuasions of the parents. That this is not the general practice of the profession, I feel assured; yet, to my knowledge, it is true with some. When we find the still more aggravated condition of "ballooning," or when the prepuce is practically a sac allowing only a dribbling of urine, operation is imperative. The intensity of symptoms depends upon the amount of phimosis. These may be divided into direct and reflex. The former are due to the local irritation, and are purely those confined to the part; the latter, or reflex, may be said to be almost innumerable and not confined to any particular part of the organism. Of the direct symptoms, the most important are those of an inflammatory nature, which in time may develop into a suppurative form. Accompanying this inflammation, and often the result of it, we have adhesions and vegetations. Of these two, the adhesions are the more constant features and on which the reflex symptoms depend to a great extent.

The more common reflex disturbances are those of the digestive apparatus. We have all the features of indigestion, both of the stomach and intestine, aggravated and rebellious to treatment when the true cause is not determined. Irritability is another feature, accompanied by sleeplessness. Sedatives and hypnotics seem to have no permanent effect, and are almost useless. The effect of urination is sometimes startling to the mother, and the crying and discomfort are so pronounced that it directs the attention to the real cause when otherwise not known. The more aggravated the phimosis, the more decided are the reflex disturbances. Convulsions, while not so common, are frequently the result of this condition. These, if not serious, are at least alarming. Dr. Sayre, of New York, published some time ago several cases of relaxation of the muscles of the back with curvature of the spine in children, caused by phimosis with adhesions, the local irritation being so great as to keep the child in a condition of almost constant priapism.

Some physicians have claimed that a condition similar to Pott's disease has been the result of these adhesions and has been mistaken for it, and which

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has been cured by operation for this preputial condition.

Prolapsus ani frequently accompanies phimosis in children when there is preputial inflammation. Symptoms similating stone in the bladder have been traced to this condition. I feel confident that phimosis will aggravate the symptoms of any coexisting disease and be responsible for slow recovery in many cases. Without considering other possible reflex symptoms, I feel sure that those already enumerated will be sufficient to attract attention to the real necessity of examining each male child for this condition.

Passing from symptoms, the one evil most frequently the result of phimosis in its less decided type is masturbation, often the result of the local irritation in the small child, which he seeks to relieve by manipulation of the parts.

The statement that most cases will in time correct themselves is not altogether true, if by this the power of total retraction of the foreskin is meant; for if it were true, why would there be so many adults, with various venereal diseases, that come to the average physician's office who cannot retract the foreskin to any great extent? What does this condition mean when treatment is taken into consideration? I do not doubt that many will agree when I say that they have felt that had the family-physician done his duty to this man when a child, that he now would not be the disagreeable and difficult case to manage that he is. The proper treatment for a positive cure means the long-neglected operation in addition to the treatment for venereal disease.

Take another set of cases—those who consult the physician for real or fancied symptoms the result of masturbation. It is my experience that few, if any, can uncover the glans. There is nearly always local irritation, and often inflammation later as a result. Here, again, the early operation would have saved all this, and must be done now in order to cure. The sooner we come to pretty general circumcision, the better, physically and morally, will it be for coming adults.

As the operation is not an uncommon or difficult one, it is not necessary to enter into details. I wish to place myself on record as against the operation of simply slitting the prepuce in infants. This is of no practical value for permanent results. It will often suffice in adults, but in children, after union of the several parts, the condition is not much improved, and certainly the redundant prepuce is still there.

I will cite one case that I feel is quite typical of those of a more decided character:

The child was about two years of age, and the mother brought him to be treated for convulsions. These had become more frequent and of a more severe type a few weeks preceding this time, happening as often as every day or so. The physician in attendance had done everything in his power to remove this condition, but in vain, sedatives and every remedy tried only having temporary effect. The condition of phimosis could not have been suspected, as the mother had no suspicion of trouble there. The child was anemic, had lost in flesh, had no appetite, seemed very irritable, and was sleepless. The mother seemed to feel that the child was not destined to improve, and was willing to have anything done to benefit him. Hearing the history made me suspicious of the real cause, and an examination quickly confirmed my opinion. The prepuce was elongated and inflamed, and exuded a purulent discharge which was typical. Of course the parts were very sensitive, and the child objected with energy to any manipulation. Operation was suggested and acted upon immediately, after which, under proper care, the inflammation subsided and improvement began. The child entered upon a new state of being, as it were, losing all the old symptoms, and gaining in every way.

This case is not an unusual one, although many are of a less severe type. I feel sure, however, that they occur sufficiently often to warrant the one thing I plead for—careful examination of every male infant, and when necessary the proper remedy for each case of phimosis.

431 RADCLIFFE STREET.

## CREOSOTE CARBONATE IN THE TREATMENT OF PULMONARY TUBERCULOSIS.

BY WILLIAM H. DUKEMAN, M.D.,
OF LOS ANGELES, CAL.

IN recommending any remedial agent in the treatment of tuberculosis of the lungs nowadays, one must do so with great reserve, and he should be fortified with such facts as will bear out his assertions. So many medicines have been recommended of late for this disease that even the nonskeptical are becoming shy, and are again falling back on the old empiric treatment. One by one each new remedy has fallen by the wayside for other newer ones to be tried that have come into the market. Of the latter creosote carbonate takes its place at the head of the list, and from reports so far I think we are justified in giving it a prominent place in the treatment of the disease. In many cases, however, the physician, the pharmacist, or the patient is more to blame that a remedy fails rather than that the remedy itself is of no value. First, we must have a pure drug, then a system in its administration, and finally a dutiful patient to carry out in detail, systematically and thoroughly, everything advised. Without these precautions well followed up, no one should expect to be able to combat so destructive a disease.

In creosote carbonate the manufacturing pharmacist has succeeded in giving us a preparation of

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creosote that is nonpoisonous and nonirritant, and capable of being given in doses sufficiently large to produce a general systemic effect without any evil drawbacks. Creosote carbonate contains 92 per cent. of the purest beechwood-creosote chemically combined with 8 per cent. of carbon dioxid. The preparation is a limpid, oily-looking solution, and remains in perfect solution for some time. As age or conditions of weather grow on it, it partially separates, forming a thickened, cloudy mixture, which, however, is readily overcome by placing the bottle in a water-bath, keeping the water boiling until the temperature of the creosote carbonate reaches 210° F., which will sometimes take from twenty to thirty minutes or longer, when it will again resume its perfect normal solution, and remain so for a long time.

The remedy is expensive, retailing at $1 an ounce, by weight. In each of the several cases in which I have given the remedy a careful, systematic trial, every other detail in the treatment as to *diet* and *hygiene* being also thoroughly considered, I have had very marked improvement. These cases, however, were selected, none being in the far-advanced stage of the disease. The objective and subjective symptoms were well marked in all, and all had undergone other treatment by different physicians before coming under my care, as these patients were sent to this climate for their health. Two of these patients were under my care previously, at which time I then pursued an entirely different course of treatment. Both had previously taken creosote, from which they in both instances received very little benefit. While under treatment with creosote carbonate they have rapidly improved, and now continue to gain in weight. The advantage of creosote carbonate over the plain creosote is that it is completely assimilated, and can be given in much larges doses, and does not produce, in my experience, any ill effects. To prove that the drug is thoroughly assimilated, the skin and the breath eliminate the characteristic odor, and after long-continued use of the drug the urine presents the usual dark color and odor due to its presence in the urine.

The best mode of administering the drug is to drop it in the yolk of an egg, well-beaten up, and taken after each meal and before retiring at night. I also make use of the white of the egg by having it beaten up in a glass of milk, and taken between meals, with or without wine, as desired. I usually commence with 5 drop doses, and increase 1 drop a dose each day until the patient takes the amount necessary to produce the desired effect. When I arrive at the dose from which the patient himself notices marked improvement, I advise the continuous use of that dose for a week or two without increasing it, but then to again increase 1 drop a day for a week, or until marked signs of improvement again show themselves. The dose then remains uniform for some time. In this way I have had no reason as yet to give beyond 40 drops, although much larger doses have been given. I should not hesitate to increase the dose up to 60 drops should indications demand such a quantity.

As an illustration of the efficacy of this treatment I report the following case:

Mr. G., 33 years old, now a real-estate agent in his city, came under my care two years ago. There was a history of tuberculosis in the family. Two years before coming to Southern California he was afflicted with malarial fever, and about one year later with right-sided pneumonia. A gradual decline in health followed, and he states that after six months his physician advised a change of climate to Arizona, explaining to him that his left lung was also slightly involved. For four months previous to coming here, while in Arizona, he took 10-drop doses of creosote in capsules t. i. d. Under this treatment he did not improve. After coming here he continued the creosote for a short time, and the change of climate resulted in a slight improvement in his condition, but for a short time only. He then discontinued all treatment. It was not long, however, before he again commenced to fail in strength, and his health again broke down. It was at this time that he consulted me. I made a thorough examination, and found the upper portion of the right lung and the apex of the left lung involved, well advanced in what I would term the second stage of the disease. Night-sweats were causing a great drain; there were harassing cough and free expectoration, in which many bacilli were present. I at once advised a complete change in his habits, his diet, hygiene, etc., and put him on 10-drop doses of creosote three times daily, and good tonics. He improved a little for a time. He was then manager of a clothing-house, and in this occupation he was advised to make a change. He went into the real-estate business to do outdoor work. With all changes made for his benefit he did not improve, and about ten months ago he had another attack of pneumonia involving the middle lobe of the right lung. This came near taking him "from this earth of misery," as he expressed it, and it was a great struggle for him to gain strength enough to get about. He lost 20 odd pounds in weight. Under the best of care with the former treatment he made very little improvement in general health or in the condition of his lungs. I then put him on creosote carbonate, commencing with 5 drop doses in the yolk of an egg, 4 times daily, and increased the dose until he was taking 15 drops at a dose. In less than two weeks there was marked improvement, and from this time on he has gained now over 20 pounds, or his former weight. Later he took 20, then 30 drops at a dose, and at present is taking 40 drops, four times daily, and beyond this dose there has been no indication for an increase. In less than two months of the creosote-carbonate treatment he was able to resume work, and has been at active work every day since. He is gaining in strength and

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weight daily, and is again encouraged and confident that he may live a long and useful life for the benefit of his wife and four children.

The other cases have done equally as well if not better, but were not in so precarious a condition.

The minor details of treatment I pursue in these cases would require too much space to relate, but I would state that the personal habits of every patient are thoroughly investigated in every detail and all faults corrected, so that the patient actually lives a new life.[1] The creosote carbonate I hold, as it were, in reserve, and do not give it promiscuously.

In conclusion it may be said that although this climate is no doubt a helpful agent in the treatment of patients with pulmonary tuberculosis in its earlier stages, yet under other treatment they do not always show very marked gain, or what gain there is in many instances not continued; but under the creosote-carbonate treatment the gain is of a more strengthening character and apparently will prove permanent.

## CLINICAL MEMORANDUM.

### *A CASE OF MILIARY TUBERCULOSIS WITH UNUSUAL SYMPTOMS.*

BY CASPAR W. SHARPLES, M.D.,
OF SEATTLE, WASH.

A. B., a male, aged 24, some time in his early life had a mitral murmur which was not present at any time after he came under my observation. In 1891 he went to college in New Haven, taking while there a good deal of exercise. One day after some exertion he had hemoptysis, raising quite a large amount of blood. This was followed by three other copious attacks. Accompanying, or soon following, these hemorrhages, he had pneumonia involving the lower lobe of the right lung. In all he was confined to bed for three weeks. There was also diagnosticated at that time tuberculous involvement of the left apex, on account of which he was advised to go to some southern climate, which he did, and by travel and care his condition improved so much that he returned to Seattle to all intents and purposes well.

For the last year or so he worked very steadily on a newspaper as manager, putting in long hours, often late at night, and subjecting himself to more or less exposure. In the meantime he had attacks of iritis and ulcerative keratitis with quite persistent frontal and basilar headache accompanying and following, and it was on account of these that I first saw him in consultation with Dr. Dawson. The next time was for life-insurance purposes, on November 21, 1894, when I found evidences of very moderate consolidation of the apex of the left lung, on account of which I advised his rejection. Some time later he consulted his regular physician, who found some rise in temperature but with no regularity, and advised a change of climate and occupation.

On Friday, March 15, 1895, coming down town he faced a cold piercing wind. It was about 9 A.M. He then had hemoptysis to the extent of about a pint, so far as could be told from his description. On Saturday night following, his temperature was 104°, and Sunday morning it was about 103° all the forenoon. At 11 A.M. of that day he had a second hemorrhage of less than a teacupful. The temperature remained high through and after this. At this time my connection with the case began, on account of the illness of Dr. Dawson.

There are four points in the subsequent history of the case which are of more than ordinary interest, and it is on account of these that I venture to report a case of tuberculosis: 1, the physical signs and the expectorate: 2, the course of the temperature; 3, the action of the heart; 4, the nervous symptoms.

When I first saw the man the respiratory rate was 40, but this soon dropped to 32, remaining at about that rate till midnight of the following day, when it began to fall, coming down as low as 22 on the evening of the next day—the 19th—ranging from that to 26, from that time till the morning of the 22d, when it began to increase again; 28 was the lowest and 58 the highest reached after that period, averaging about 44 for the remainder of his illness. For two days just preceding his death he had a respiratory rhythm that very much resembled the Cheyne-Stokes respiration, which, however, was not constant, for at times he would breathe regularly. Dyspnea never was extreme.

Soon after the last hemorrhage, when I examined his chest there was no expansion at all on the left side, the right consequently expanding the more. Vocal resonance and fremitus were absent over most of the left lung. Percussion gave a very dull note over the left apex, and a flat one over the rest of the left chest, with some impairment over the lower part of the right lung (which, as I understand, had been the seat of the old pneumonia). Auscultation showed that no air was entering the lung excepting a small amount in the apex, where there was bronchial breathing, and at the border of the scapula midway up could be heard very high-pitched but not intense bronchial breathing. But this was all changed as suddenly as it no doubt came, for on Tuesday the 19th, about 11 A.M., he spat up the cast of the bronchial tubes depicted in the accompanying illustration. It appears to have been lodged in the primary bronchus, branching out immediately into the tubes next in size, the smallest pieces being formed in tubes a sixth in size. Assuming that it was formed as a result of the second hemorrhage, it lay where it was formed for 48 hours. The day when this was brought up marks the day of the slowest respiration. The percussion-note also changed. At the apex it remained the same, but over the rest of the lung the resonance was still impaired, but by no means to the extent that it had been. It continued to clear up for the next 24 hours, when it would have been classed as impaired resonance. In three days it again became duller, but never to that degree that characterizes a pneumonia. It so remained until his death. That of the right lung on March 24th became more extended. The respiratory sounds consisted of very intense bronchial breathing over the left apex with mucous râles, while they were not materially altered over other parts of the chest, except for the presence of subcrepitant and mucous râles, chiefly the latter

[1] See Article on "The Hygienic and Dietetic Treatment of Consumption, with Reference to Southern California Climate," by Wm. H. Dukeman, in New England Medical Monthly, Nov, 1895.

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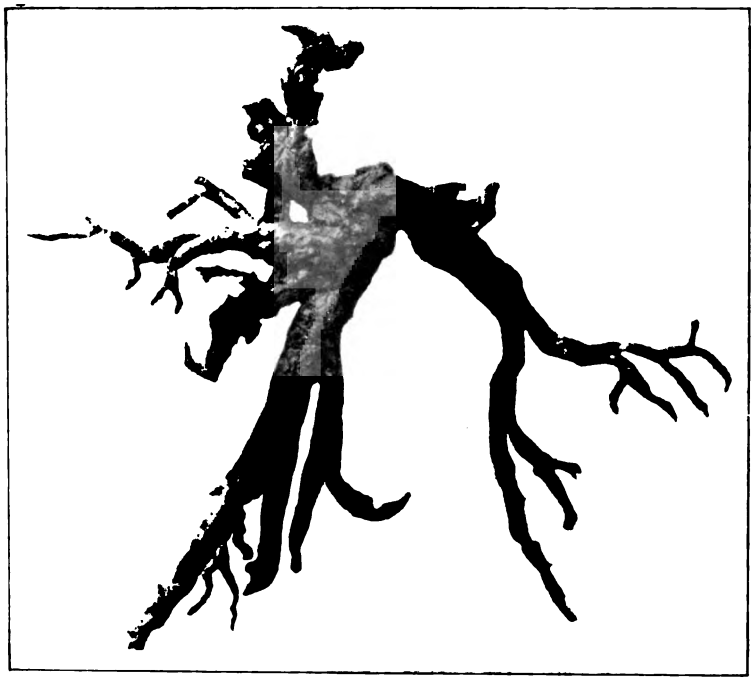
for the last few days. He coughed very little then, and rarely raised anything; consequently no stains were made.

The temperature on the 16th at night was 104°, and in the morning of the 17th 103°, being up to 104° by midnight, and this with a cold pack constantly around his chest and ice-bags on the outside of the packs. At 8 the next morning it was 104.4°, being in the evening only two-tenths of a degree higher, and so it ran for five days in spite of the constant application of packs and sponging; only once after sponging was his temperature reduced to 102.8°. On the 21st I applied ℥xij of guaiacol to the abdomen, at 9 o'clock in the forenoon, when the temperature was 104.4°, with very little effect. At 1 P.M., with a temperature 104 4°, I applied to his chest ℥xx, with the result of causing the temperature to drop to 99° in four hours, and it also caused a chill that lasted 30 minutes. In two hours more his temperature had again risen to 106°, when I used ℥x of the guaiacol. His temperature at midnight was 100.6°, with another chill less severe than the last. This was the last of the excessively high temperature that was continuous. It was often between 99° and 100° for a long time.

At some previous period he had a mitral systolic murmur, but nothing was present at this time but a pulmonary murmur. At my first visit the pulse was about 100 and regular, of very good volume, everything being considered. On the second day it was so in the morning, ranging from that down to 88, but gradually decreasing in strength till the 22d, or fifth day, when I ordered the infusion of digitalis in half-ounce doses every six hours, without making any marked impression. But on the morning of the 26th, the ninth day, the pulse was taken as 116, and a few minutes later 68. At noon it was 104, and fell to 60. Once while I was listening to his heart this change occurred. It came with a throb as though the heart had turned over on itself. Once or twice the heart maintained this slow rate for a day. It would change back as suddenly to the rapid rate as it had previously changed to the slow one, sometimes in five minutes, and sometimes not for hours. The rhythm during the times of slow and rapid action was good. The volume was very changeable, sometimes being fairly strong and at others very weak, almost imperceptible. The most marked drop was when the nervous symptoms were severely coming down from 140 to 70, or from 130 to 60, a clear change of rate in a second of 70 beats.



Bronchial cast. Natural size.

The nervous symptoms were not constant. At first there were none, though he slept poorly from the first. On the sixth day he was in a semicomatose condition, or, as the nurse described it, a stupor-like sleep, all day long, followed by periods in which he talked in his sleep or moaned constantly. On the night of the tenth day he was awake all night, while on the next night he slept all night. On the thirteenth day the nurse reported a general convulsion lasting an hour, occurring at four A.M., and between eight and nine o'clock he had a severe tremor of the right side. There were four more convulsive seizures all of which were general for a few minutes, but for most of the time affected only the right side. One of these right-sided affairs I saw, which was like the others. The entire right side was in a state of clonic spasm, with more or less rigidity of the muscles. There was ptosis of the right side and partial paralysis of the face. This condition of the face passed away with the cessation of the other condition. Each of these



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convulsive periods lasted three or four hours, and during them the heart was more irregular than at any other time, as was the delirium more marked. But after the three days in which the convulsions occurred his mind again became so clear that he seemed to realize all that was said and done. While jerking so much he perspired as though he had taken a large dose of pilocarpin.

On the seventeenth day he began to vomit, raising large quantities of a dark-colored liquid, far in excess of the amount he drank. It was to all appearances like beef-tea, and for thirty-six hours very offensive, being nearly fecal in odor. At the same time he retained nothing by the rectum. This continued until his death, except that the odor of the vomited matter was less offensive and the color changed to green.

There may be a question in regard to the diagnosis, the only possible diagnosis other than tuberculosis being catarrhal or croupous pneumonia. At first the temperature was higher than one would expect with tuberculosis, though it later ran the course of ordinary cases. When the lung was found so solid soon after the hemorrhage and associated with the high temperature, it seemed very probable that we had a pneumonia to deal with, and the more so on account of the high-pitched bronchial breathing posteriorly, but there were no râles over all this dull area; and practically, with the exception of that immediately after the hemorrhage, there was no cough. In fact, the only expectoration from the lung was that dependent on the hemorrhage. Again, had there been a croupous pneumonia involving these areas the lung would not have cleared up to so remarkable a degree just after the expectoration of this bronchial cast. Cough, too, is a prominent symptom of catarrhal pneumonia, and as a rule is present in cases of miliary tuberculosis of the lungs; but all of us have seen cases of miliary tuberculosis that resembled typhoid fever and were so diagnosticated before the autopsy showed the difference. I have seen one case of miliary tuberculosis that was practically without any cough.

To recount this history has been an easy task. To accurately explain the symptoms recounted is not so easy, and at any rate must be pure theory. However he may have acquired it, the man had four years ago a pulmonary tuberculosis, whose activity was checked by proper hygienic and climatic influences till this winter, when it again started up, and on top of it all came this sudden outbreak of miliary tubercles, ushered in by the hemorrhages. The apical bronchial breathing was due to the tuberculous inflammation at the apex. The high-pitched bronchial breathing posteriorly was due to the small amount of air passing by the plug formed in the bronchial tubes from the clotted blood. The absence of the breath-sounds and the flat percussion-note of the other areas of the lung were due to the air-supply having been cut off by this bronchial plug. The expectoration of this plug explains the reappearance of resonance and breath-sounds. In the râles there was no peculiarity.

The temperature was remarkably high, and no doubt depended simply on the tuberculous trouble.

The action of the heart was peculiar. The irregularities did not appear until three or four days after the man had had a couple of ounces of the infusion of digitalis a day. However, I do not think that the digitalis could be held accountable for this action, since its effect is to steady a heart, decrease its rate, and increase its force. This heart was not steadied, its rate was not permanently decreased, nor was the pulse fuller and stronger when this decrease in rate occurred; on the contrary, it was often weakened.

It seems possible or probable that there was a tuberculous inflammation around the base of the brain, and that the vagus nerve was either in its origin or course involved or irritated by this tuberculous deposit, and so the heart was made irregular. Yet there are shortcomings in such an idea as this that I cannot bridge over. The convulsive actions, general and unilateral, seem to have depended on tuberculous deposit at the base of the brain, as would also the ptosis and the inequality of the pupils. That these should have passed off is rather remarkable, though in nearly all text-books we find a statement that cases that seem to be undoubted ones of tuberculous meningitis recover. So in this case there may have been only a limited deposit, and this the more so since so much more of the convulsive action was unilateral in place of general.

It is unfortunate not to have determined the cause of such a queer symptomatology.

## MEDICAL PROGRESS.

***A Case of Quintuplets.***—STOKER (*Lancet*, No. 3767, p. 1164) has reported the case of a healthy woman, thirty-five years old, five feet one inch high, and of slight build, whom he delivered of five fetuses in the seventh month of pregnancy, none of the children surviving. The patient's mother had on two occasions given birth to twins. The woman herself had been married for six years and had borne four children at full term, having no difficulty in labor. When she came under observation she computed that she had been pregnant for six months, and had had her attention attracted to the unusually large size of her abdomen. She complained of fixed pain in the left side of the abdomen, on which side she thought she was larger. Pains set in with regularity and the labor lasted eight-and-three-quarters hours. After the rupture of the membranes the first child presented by the shoulder. Version was readily performed; the child was dead (recently). Examination after the birth of the first child disclosed the existence of more than one remaining fetus. The membranes protruded and became tense with each contraction. The presentation was a transverse one. In this case also there was little difficulty in effecting internal version. The child lived a couple of hours. The third fetus was also enclosed in a separate sac which had to be ruptured. The child presented by the breech and was delivered naturally, and lived for an hour. In the fourth case, too, the membranes had to be ruptured, and alarming hemorrhage ensued. Version was at once practised, but the chin became locked with that of the remaining fetus. There was some difficulty and considerable delay in freeing the children, though the extent of locking was not at any time formidable. The child was dead (recently). The fifth fetus presented by the head and was delivered naturally. It lived for half an hour. The placenta was delivered about five minutes after the birth of the last child, and consisted of two portions united by

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a narrow isthmus. One, the smaller, had two cords attached centrally and close together; the other, and larger, had two cords attached in a similar way and one where it was joined to the isthmus. The organ appeared to be perfectly healthy. The cord of the fourth child was so short that it had to be ligated in the vagina. The children were all females, and much about the same size, making a total weight of eight pounds. The mother rallied quickly and got on well.

***A Case of Spontaneous Gluteal Aneurysm.***—DELAUP (*New Orleans Medical and Surgical Journal*, vol. xxiii, No. 5, p. 257) has reported the case of a strong, well-developed, seemingly healthy negro, 21 years old, who complained of a pulsating tumor of the right buttock, which disabled him from hard work. On examination an irregularly defined, fluctuating, elastic, pulsating tumor, unattended with inflammatory symptoms, was found situated about an inch above the right gluteal fold and nearer the median line. The patient's attention had first been attracted to his trouble about three years before, when he felt a vague, throbbing sensation and a feeling of heat about the affected region after severe muscular exertion. Some time later he noticed a swelling, which grew constantly and steadily. The expansion of the tumor was especially marked at its lower part, where the bulging was most prominent. The right thigh was larger than the left, and the upper and inner branches of the saphenous vein were much dilated and varicose. There was no diminution in the volume and force of the pulse of the right leg as compared with the corresponding vessels of the opposite side. On palpation, a distinct vibrating thrill could be felt over the lower part of the tumor, which imparted also a sense of heat and had the consistence of a cyst. Forcible digital pressure at the upper third of Nélaton's line restrained both pulsation and thrill, as did also pressure with the closed fist over the abdominal aorta. The patient stated that there had been a birthmark in the region of the tumor, and the skin in this situation was darker than elsewhere. A diagnosis of arterio-venous aneurysm was made and an external operation undertaken, which was, however, not successful, from failure to secure the gluteal artery. Extraperitoneal ligature of the internal iliac artery was proposed for a subsequent occasion, but the patient failed to put in an appearance at the proper time.

***The Treatment of Invagination of the Bowel.***—As the result of a careful study, RYDYGIER (*Deutsche Zeitschr. für Chirurgie*, B. xlii, H. 1, 2, p. 101) arrives at the conclusion that in cases of acute invagination of the bowel operation should at once be resorted to as soon as bloodless therapeutic measures, thoroughly employed, have proved fruitless. After celiotomy has been effected, disinvagination should be undertaken unless contraindicated by unusual difficulties. If the condition of the walls of the bowel, especially at the point of inversion, is suspicious, a strip of iodoform-gauze is to be passed to this situation or the affected part is to be placed external to the abdomen. When disinvagination is not feasible, resection of the invaginated portion is the least serious operative measure. Resection of the entire invagination is to be undertaken when the invaginating sheath presents decided changes in the walls and perforation is threatened. The establishment of an artificial anus and enteroanastomosis are usually not applicable in the treatment of acute invagination of the bowel; the former would only be allowable in case of profound collapse. In the treatment of chronic invagination bloodless measures should at first be employed repeatedly, but not over too long a period. The interval after an attack is the best time for the performance of a surgical operation for the relief of the invagination. After celiotomy has been done, disinvagination is to be attempted. In the event of its failure, resection of the invaginated portion is to be preferred over other operations.

***Acute Yellow Atrophy of the Liver Following Torsion of the Pedicle of an Ovarian Cyst.***—STOCKER (*Centralbl. für Gynäkologie*, 1895, No. 45, p. 1181) has reported the case of a woman, 25 years old, in whom, six weeks after the birth of her first child, the existence of an ovarian cyst was detected, which gradually increased in size. Operation was agreed upon, but before the time set the patient was seized with symptoms of twisting of the pedicle, and the temperature rose slightly. Upon opening the abdomen at this time there presented a bluish-black cystic tumor as large as an adult head and attached to the ovary. Douglas' pouch contained a small quantity of hemorrhagic serum. The pedicle of the cyst was twisted four times upon itself and was also bluish-black in color. The tumor was readily removed, but death ensued three days after the operation, being preceded by restlessness, sleeplessness, and coma. The secretion of urine was scanty and examination disclosed the presence of albumin. Finally, toward the close, jaundice appeared. Upon postmortem examination no abnormality was found in the field of operation. The liver, however, was small, flabby, and of striking yellow color, punctated with numerous red spots. The kidneys were swollen. In the urine were found crystals of leucin and tyrosin.

***Acute Glossitis due to Urticaria.***—HAMILTON (*Medical Press and Circular*, No. 2949, p. 494) has reported the case of a man, 42 years old, who, during a period of eight years, was from time to time seized with attacks in which the tongue became swollen and thickened and protruded an inch beyond the edge of the teeth, together with thickening and swelling of the submental region. There were also scattered spots of urticaria in various situations. The swelling usually subsided in a short time. On one occasion it was necessary to incise the tongue on the sides to prevent suffocation. The attacks could be controlled by the sucking of ice. The patient always felt a bald-like spot on his tongue in anticipation of the swelling. To induce sweating, sodium salicylate and an infusion of pilocarpus were administered, and the attacks were for a time controlled. The seizures sometimes, though not always, followed the eating of fish or oysters and even the smoking of a cigaret. They yielded most readily to subcutaneous injections of pilocarpin.

***Blastomycetes in Sarcomata.***—RONCALI (*Centralbl. für Bakteriol. und Parasitenk.*, B. xviii, No. 14, 15, p. 432) relates that in five sarcomata, arising in three different situations and from different tissues, he found in vary-

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ing numbers, but constantly, parasitic bodies, which he designates blastomycetes. These resemble the bodies already described as present in adeno-carcinomata of the ovary, and stain in a specific manner, resisting the action of alkalies and acids. The parasites may be located within and without the cells, and exceptionally within the nuclei. They multiply by budding, and may be encountered at an early stage—that is, free from membrane and containing an abundance of chromatic protoplasm; or even at an advanced stage—that is, with a thick membrane and containing slightly chromatic, variably granular protoplasm; or finally with or without such protoplasm as has lost the property of staining with anilin colors.

*The Relation between Phagocytosis and Immunity.*—As a result of an experimental investigation into the phenomena induced by corneal inoculation with anthrax-bacilli in susceptible and refractory animals, LIAKHOVETSKY (*Archives des Sciences Biologiques*, T. iv, No. 1, p. 42), while admitting the existence of phagocytosis in animals susceptible to anthrax and attributing to this condition an essential rôle in the process of establishing resistance in individuals inoculated with the virus of anthrax, contends that it must be recognized at the same time that immunity is far from being determined by phagocytosis solely. Phagocytosis represents only one of the general functions of the animal organism, quite independently of its susceptibility or resistance to anthrax, and the intensity of which is at times in inverse proportion to the degree of immunity.

*Persistent Secretion of Gastric Juice.*—BOAS (*Berliner klinische Wochenschrift*, 1895, No. 46, p. 1001) expresses the opinion that persistent secretion of gastric juice is in most cases not a definite disease, but an accompaniment or sequel of other well-recognized disorders. It many cases it is a result of motor insufficiency. Practically a distinction is to be made between a natural and an artificial excessive secretion of gastric juice. When motor insufficiency is recognized it should be treated, and with its disappearance the excessive secretion ceases. When pyloric stenosis acts as a cause, the two conditions can be relieved by operation.

*A Young Mother.*—GLEAVES (*Medical Record*, No. 1306, p. 715) has reported the case of a girl who gave birth to a well-formed child at the age of ten years and two months. The girl lacked the development of a woman, although she had menstruated regularly from the age of five years. The labor was short and uneventful, and two hours afterward the girl wanted to get up and dress. The mammary glands were undeveloped, and there was no secretion of milk. The infant lived a week, being nourished by its grandmother, who was nursing a child a few months old.

## THERAPEUTIC NOTES.

*Fatal Poisoning with Phenacetin.*—KRÖNIG (*Berliner klinische Wochenschrift*, 1895, No. 46, p. 998) has reported the case of a boy, seventeen years old, who looked ill and depressed, and complained of pain referred to the occiput and also to the right hypochondrium. The face and body presented a dirty-yellow or ashy-gray color; the conjunctivæ were also yellowish, and the lips were cyanotic. The temperature was slightly elevated and pulse and respiration accelerated. The liver was a little enlarged and of increased consistency; the spleen considerably enlarged and of normal consistency. There was a purulent discharge from the right ear, with perforation of the tympanic membrane. A diagnosis of septicemia of undetermined origin had been made, but the peculiar aspect of the patient suggested some form of intoxication attended with blood-destruction. Examination of the blood disclosed, in addition to an increased number of white corpuscles (mononuclear equally with polynuclear), destructive changes in the red cells—a true erythrolysis. Upon further inquiry it was now learned that the patient had received for the relief of occipital pain five powders of phenacetin of 15 grains each, of which he was to take one during the attack, but not more than two in twenty-four hours. After taking the fifth powder, at the end of three weeks, the patient was seized with vomiting, and a bluish-gray color of the face and lips was observed. The bowels became loose and the urine assumed the color of chocolate. Finally the skin generally presented a yellowish hue, while the lips, ears, hands, and feet became cyanotic in color. Death took place, and the post-mortem examination confirmed the diagnosis of septicemia, together with universal methemoglobinuria. Spleen and liver presented pronounced brownish discoloration. The kidneys were enlarged and discolored and the seat of hemorrhage. The lower lobe of each lung was pneumonic. The gastric mucous membrane close to the pylorus was the seat of an irregular ulcer.

*For Chronic Pyelitis.*—

Take of

| | |
|---|---|
| Benzoic acid . . . . | 3 grains. |
| Theriaca . . . . . | 1½ " —M. |

Two pills from two to four times a day.

Or, take of

| | |
|---|---|
| Sodium benzoate . . . | ʒj. |
| Sirup of raspberry . . . | fʒj. |
| Distilled water . . . . | fʒiij.—M. |

A dessertspoonful three hours after each meal.

Or, take of

| | |
|---|---|
| Venetian turpentine<br>Powdered camphor | āā ʒiss. |
| Extract of opium . . . | 5 grains. |
| Extract of aconite-root . . | 5 " —M. |

Divide into twenty pills. One every eight hours with a small cup of decoction of uva ursa.

—ROBIN, *Sem. Méd.; Progrès Méd.*, No. 46.

*For Whooping-cough.*

Take of

| | |
|---|---|
| Infusion of belladonna-leaves (7½ grains) in distilled water | fʒvj. |
| Antipyrin . . . . . | gr. xv. |
| Simple sirup . . . . . | fʒj.—M. |

A teaspoonful every two hours.

—ESCHLE, *Médicine Moderne*, No. 92.

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## *RUPTURES OF THE PANCREAS AND THEIR RELATION TO PANCREATIC CYSTS.*

DURING the past few years much information that is interesting and important has been added to our knowledge of the morbid changes occurring in the pancreas. Since the appearance of Fitz's Middleton-Goldsmith lectures acute inflammatory affections of this organ have received a good deal of attention. Little, however, has been written on rupture of the pancreas, and there is scarcely a surgical text-book that even alludes to the subject. Leith, of Edinburgh, in an excellent article which appeared recently in the *Lancet*, has thoroughly reviewed the subject and has contributed much valuable information to our knowledge of the relationship of pancreatic cysts to ruptures of the pancreas.

When one considers how thoroughly the pancreas is protected from traumatism, it is not surprising that rupture is so rare. The gland lies transversely across the posterior abdominal wall about on a level with the first lumbar vertebra, this corresponding very closely to a line drawn across the anterior abdominal wall about three inches above the umbilicus. Posteriorly, and from the sides, the pancreas is completely protected from injury by the bony framework of the chest, so that, for any violence to do injury to it, the point of impact must be over a very limited area in the epigastrium, and the force must be expended directly backward in the median line in order that the pancreas may be crushed between the object producing the violence and the unyielding vertebral column. Rupture of the pancreas seldom occurs unassociated with injury of some of the other abdominal viscera, owing to its being more or less protected by them. Leith has collected from the literature seven cases of rupture which terminated fatally a few hours after the injury. Two cases that he himself reports make a total of nine, and in only two of these was rupture of the gland found unassociated with injury of any other organ.

The symptoms following rupture are not at all well defined, and this is rather remarkable when one considers how definite and characteristic are the local signs in acute pancreatitis. The chief symptoms are collapse and shock, which come on almost immediately and are mainly due to bleeding. The hemorrhage takes place chiefly from the organs that are ruptured in addition to the pancreas, hemorrhage from the pancreas alone being very slight, unless the splenic artery and vein are torn. From a medicolegal standpoint it is interesting to know that in none of the fatal cases have there been any evidences of external injury.

Owing to the absence of any localized symptoms it is practically impossible to make a diagnosis with any degree of certainty. Leith claims that the pancreas can be thoroughly explored by the finger introduced through an incision three inches long to the left of the median line in the epigastric region, and that it is only by this means that we are able to make a positive diagnosis.

A fatal result need not necessarily follow rupture of the pancreas. At varying intervals after the occurrence of an injury received in the epigastrium, cystic tumors have been found to be present in this region, and the chief interest in Leith's article centers on the relation of these cysts to ruptures of the gland. Leith has collected from the literature seventeen cases of pancreatic cysts in which there was a history of traumatism. That all these cases were true pancreatic cysts it is impossible to say with certainty. A considerable number of them were undoubtedly such, as the fluid obtained by aspiration gave the reactions characteristic of the pancreatic juice when submitted to chemic analysis. The interval that elapsed after the

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injury, before evidence of a cyst appeared in the epigastrium, varied a great deal. The shortest time was ten days and the longest eight years. The greater portion of them, however, appeared between two weeks and four months after the injury.

There have been many conjectures as to the mode of origin of these cysts. Kuhlenkampff held that the injury caused an inflammation of the gland-substance which led to a closure of the duct, with the consequent formation of a retention-cyst. Senn, although he at first held this view, found from experimental work on animals that obliteration of the main duct was not followed by much distention, and that really the part of the gland thus physiologically cut off from the main duct underwent simple atrophy. He then formulated three main hypotheses, as he considered that the cyst might be formed in various ways: (1) by hemorrhage into a preexisting pancreatic cyst; (2) by parenchymatous hemorrhage producing a cyst, followed by hemorrhage into the cyst-wall; and (3) by a dilatation of one of the bloodvessels of the pancreas. The second view seems to be the most probable one, and is supported by Cathcart, Lloyd, and Leith himself. Cathcart explains the process more fully, and holds that the laceration of the gland is followed by an extravasation of blood, which becomes mixed with secretions from the torn pancreatic ducts. The cystic tumor gradually increases in size owing to the secretion poured from the pancreatic ducts, and owing to the irritating character of the mixed fluid a capsule forms about it, so that a definite cystic tumor is formed.

There are several conditions that may simulate a traumatic pancreatic cyst very closely, as, for example, a pancreatic cyst of spontaneous origin. Spontaneous hemorrhage may take place into the substance of the gland, finally leading to rupture of some of the pancreatic ducts, with a consequent admixture of pancreatic juice with the extravasated blood, and leading to a cyst which it would be practically impossible to diagnosticate from one of traumatic origin. Again, as Fischer suggests, a spontaneous hemorrhage may occur in the neighborhood of the pancreas, and the effused blood, by pressure on the pancreas, lead to atrophy of this gland, with an escape of pancreatic juice from some of the opened ducts. Here it is obvious that the resemblance to a traumatic pancreatic cyst will be striking.

It is well recognized that the peritoneum in its various reflections, particularly the lesser omentum, is a fruitful source of cystic formation. Quite a number of other instances might be enumerated in which pathologic changes distinct from the pancreas simulate closely traumatic cysts of that organ, but sufficient has been said to show that it is extremely difficult to say positively whether we are dealing with a traumatic pancreatic cyst or with one of some other origin.

Chemic analysis of the contents of the cyst will aid materially in the diagnosis. Reactions characteristic of the pancreatic juice afford strong evidence in favor of the cyst being pancreatic in origin and of the traumatic variety, if there has been an injury. The failure to obtain the reaction for the pancreatic juice does not definitely exclude the condition, as it has been found that the contents of the cyst become materially altered after a time. Leith therefore suggests that the term "epigastric" rather than the term "pancreatic" be used for any cyst of doubtful origin which occupies the epigastric region.

In a case in which severe shock and collapse follow an injury in the epigastric region, the expectant plan of treatment, as absolute rest, and the application of ice to the abdomen, must be adopted unless a celiotomy be performed. If an exploratory incision be made and a rupture of the pancreas be found, Leith recommends the application of pressure to stop the hemorrhage, and then that the ruptured ends of the glands be coapted by means of sutures passed superficially through the capsule which is closely adherent to the gland-substance. This may result, however, in the collection of blood and pancreatic juice between the ruptured ends of the gland, leading finally to the production of a cyst. Senn has proposed to obviate this danger by first ligating both ends of the ruptured gland and then bringing them together by means of sutures as already indicated. He found that glands treated in this way healed rapidly without the formation of any cysts in the distal portion, as all portions of a gland thus physiogically separated from the rest of the gland undergo simple atrophy.

With regard to the treatment of pancreatic cysts, aspiration has not proved a success, as it has been found that the cyst almost invariably refills. Consequently at the present day celiotomy is the favorite treatment, the cyst being brought forward to the abdominal wall, incised, emptied, and drained. This was the method used in all the seventeen cases

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Leith collected from the literature, in all of which except one it was successful. Drainage through an anterior incision is not thorough, and occasionally an obstinate fistula follows. Cathcart and Littlewood suggested that the cyst might be opened from behind. Leith, acting on this suggestion, experimented on the cadaver and found that it was not at all difficult to reach the tail of the pancreas and enter the lesser peritoneal cavity through a posterior incision three inches long on the outer side of the "left rectus," beginning above at the twelfth rib. As evidence in favor of the efficacy of this method, Gould had a case in which an obstinate fistula followed the opening of the cyst through the anterior incision, which, however, rapidly healed after making a counter-opening behind.

## POPULAR SUPERSTITION AS TO PREMATURE BURIAL.

THERE are probably few more generally felt dreads than that of being buried before life is extinct; and this fear is fostered by a huge assortment of gruesome tales of alleged instances of this mishap. The well-known story, for instance, of the skeleton that was found on exhumation years after burial, with its bony hands full of its own hair, or the still more celebrated one that appears in some form in every language and literature, of the lady buried with a valuable ring who was brought to life by the rascally servant cutting her finger in order to remove the ring. The medical profession has never placed much confidence in these weird tales, although they are implicitly believed by the laity. An English newspaper has recently been trying to create sensation for the dull season by denouncing the profession for its skepticism and its failure to invent or agree upon some absolutely unmistakable sign, test, or proof of death. More than this, the accusation is made of intentional disbelief and of an endeavor to suppress and discourage belief in such stories, because they impeach the infallibility of medical diagnosis and death-certificates, and destroy public confidence in medical wisdom. According to this judgment the professional position may be thus expressed: "If we say a man is dead, he must be dead, and anyone who contradicts the statement tells an untruth."

The medical profession is denounced for never having taken the trouble to discover some absolute and reliable sign of death, which, it is argued, the profession does not care for, because people are always buried out of sight as soon as life is pronounced extinct, and they can never come back to expose the mistake. According to the same authority there is one absolute and infallible sign to which our noses would have led us long ago if we had but taken the trouble to follow them, and that is decomposition. Unfortunately for this assumption, however, this sign may appear in any part of the body to almost any extent, and involve a large part of either the external or the internal body-surface long before death, as the merest tyro knows who has seen a case of hospital-gangrene, of membranous dysentery, of phagedena, or pemphigus. It is, however, a striking commentary on the vagueness of the line that divides living from dead matter that, after all these centuries of investigation, no one, nay, no two, signs can be designated, the presence of which absolutely indicates death and the absence of which positively proves life.

Nevertheless we venture the statement that, except in war-time, cases of premature burial have been and are extremely rare, and will be practically impossible in the future. In the first place, nearly all the reports of such incidents are of a luridly sensational and dramatic character, and either highly improbable in themselves or utterly unsupported by adequate evidence.

In a recent conversation a prominent undertaker, a man of national reputation in his guild, stated that he had carefully studied this question for a number of years past, and through his editorial connection with two trade-journals he had either investigated personally or had caused to be investigated every report of premature burial in the United States for the past ten years. The reports were numerous and highly colored, but in every instance they were found upon examination on the spot to be absolutely devoid of adequate foundation—in short, to use his own expressive words, to be "pure fakes." From what he had been able to glean of the history of such occurrences in the past, he was inclined to regard the vast majority of such reports as mere folk-stories and legends.

So much for the external supporting evidence of the occurrence of premature burial. The statement is both an expert and a judicial one, for even the most vividly suspicious lay mind could hardly regard an undertaker as likely to be prejudiced or biased in his view of the question.

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As to the internal evidence, in nearly all of these weird stories, the chief dramatic incident and the principal proof of their claim to consideration are found in active and often vigorous muscular movement on the part of the buried body, escape from the vault or tomb in some cases, and in others the discovery of the skeleton in an attitude indicative of struggling and efforts to escape. No touch is omitted that might heighten the imagined horrors of the situation and the agonies of the victim in his hopeless struggle. Now, a moment's consideration of the physiology of the situation will show that such occurrences are not only highly improbable, but practically impossible under the circumstances. All bodily activity depends upon combustion, and combustion requires abundance of oxygen. What are the mathematics of the situation? The amount of carbon dioxid given off by the average man in the process of quiet respiration is 0.6 cubic feet per hour, and whenever the proportion of this gas reaches 20 parts in 10,000, the air becomes highly injurious to life, and when a proportion of 40 parts per 10,000 is reached death rapidly ensues. Now, the internal dimensions of the average coffin or casket are about 6 feet long, by 2 feet wide, by 18 inches deep, rather under than over these measurements giving an air-space of 18 cubic feet, of which the body occupies at least one-third, leaving only 12 cubic feet of clear air-space. A proportion of only 40 parts per 10,000 equals $\frac{1}{250}$, which multiplied by 12 gives roughly $\frac{1}{20}$ cubic feet as the amount of carbon dioxid that would render the air in a coffin rapidly fatal to life. But at the rate of 0.6 cubic feet per hour it is evident that this density would be reached in one-twelfth of this time, viz., in five minutes.

The ordinary coffin, moreover, still retains the traces of an origin that has long been otherwise forgotten, in both its peculiar "coffin-shape" and its tightness, viz., the original Norse custom of burying the dead in boats or galleys sent out to sea at sunset; so that the amount of air that can penetrate its joints when the lid is screwed down is extremely small. The modern casket, it is true, has lost the peculiar shape, but has added to the tightness, and, indeed, ability to render it air-tight is an especial boast. Granting, however, the highly improbable condition that one-half the carbon dioxid diffuses through these chinks as fast as it is expired, we would still be confronted by the fact that the air in a coffin in which a breathing body is enclosed would be a rapidly fatal narcotic poison within ten minutes after the lid has been fastened down—in fact, before it can be lifted into the hearse. This has been actually proved in a most ghastly manner in several curious cases, most notably in Frederick the Great's attempt to kidnap a Scotch carpenter, of gigantic stature, for his celebrated Grenadier Guards. The man was entrapped by being given an order for a coffin for a fictitious individual, several inches shorter than himself. When completed it was declared too small, and the indignant carpenter was induced to lie down in it himself, to show that it even was larger than ordered. He was at once overpowered, the lid nailed down, and the coffin carried rapidly to a deserted house, where it was opened only to find that the poor fellow was asphyxiated, although he had been confined in the box for but a very short time.

It is popularly supposed that in cases of suspended animation or trance, when there is a danger of living burial, both breathing and the heart-action are entirely suspended, but the general opinion of physiologic authorities denies this entirely. Although breathing may be so light and shallow as to be really imperceptible by ordinary tests, yet some degree of respiration and oxidation must persist as long as life lasts. In the case of bears and other hibernating animals and their human descendants, trance-sleeping dervishes, while vital metabolism, with its oxidation, is reduced to a very low ebb for a considerable period, yet it does continue steadily, as the markedly reduced weight of both bears and men testifies. Whenever oxidation, vital or otherwise, occurs, carbon dioxid is formed; so that even admitting the additional possibility of the volume of respiration being diminished to one-fifth of the normal, we still find that within fifty minutes from the time of fastening down the coffin-lid the most vigorous subject would be asphyxiated, and within one-half the time comatose—in fact, long before the funeral-procession could reach the grave. Yet nearly every one of the legends dealing with premature burial depends for its possible veracity upon feats of muscular strength performed hours and days after burial. Even supposing, to take an extreme case, that a person in a state of temporary unconsciousness from a blow on the head were placed in an ordinary coffin and the lid screwed down, he would simply be narcotized by a rapid and painless process, and become unconscious from that cause within five minutes and die within fifteen or twenty minutes. There is absolutely nothing about the

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process to provoke a return to consciousness. On the contrary, many a man has been fatally poisoned by the gradual formation of this gas in his bedroom, not only during sleep, but while awake and engaged in reading or undressing. In the case we are considering we have to deal with not only carbon dioxid, but also several other more poisonous gases formed at the same time with it.

In fine, no one need have any fear of being buried alive as coffins are at present constructed, and even if placed in the casket before life is extinct no return to consciousness is possible, and, it may be added, it is not so much being buried alive that people dread as the waking up and finding themselves buried. That this fear is a genuine and widely spread one there can be no question. Indeed, one enterprising firm has actually devised an elaborate and expensive mechanism to prevent the possibility of such mishap. The casket is provided with air-holes and the lid is so fastened down that the lightest pressure from inside throws it off by means of springs. This, instead of being placed in contact with the earth, is enclosed in a vaulted steel chamber six feet high and nine feet long, so that the "resurrected" may not only stand up, but may also walk about in it. An abundant supply of air is provided by metallic ventilation-shafts that pass up at each end to some distance above the surface of the ground, while the same spring that throws off the coffin-lid presses an electric button connected by a wire with a large gong in the house of the sexton or care-taker; though whether it indicates the number of the grave and the nature of the occupant, and his wishes as to ice-water or towels, etc., we are not informed. The apparatus is most elaborate and costs some two-hundred or three-hundred dollars, and yet so vivid is the dread of being buried alive that a considerable sale is reported already by the inventors.

Should any of our patients still retain some nervous doubt on this head that cannot be dispelled by respiratory mathematics, there is yet another safeguard that we can assure them is absolute. This consists in the modern methods of preparing bodies for burial, commonly known as embalming. There are various processes, but all essentially consist in injecting into the veins a strong solution of some preservative, such as mercuric chlorid or sodium arsenite, with which the tissues are literally saturated, at least one-hundred times the fatal dose being used in every instance. Further than this, in a very ingenious method of preventing postmortem discoloration of the corpse, a long flexible canula is introduced, by one of the basilar veins, into the right auricle and the venous system is as completely emptied as possible by aspiration. In short, as a well-known embalmer has remarked, he would guarantee any of his subjects against coming to life again. "If by any chance they are not dead when they come into my hands, they are before I get through."

When to the sufficient safeguards of professional skill and watchful relatives can be added the proceedings of the embalmer and the air-tight coffin, the phantom of premature burial, which has walked so many centuries, ought to be laid at last in the limbo of exploded superstitions, where it really belongs.

## EDITORIAL COMMENTS.

*"Toxin," a Novel.*—A remarkable novel has recently appeared written by the famous "Ouida." It is "an up-to-date" affair, and is called "Toxin," receiving its title from the fact that the toxin of diphtheria is employed by the villain to rid himself of his rival.

This in itself would hardly suffice to attract our attention, since novelists from time immemorial have made use of powerful and strange drugs to dispose of their victims, but the villain happens to be an experimental physiologist, who has been much engaged in scientific research, and so the authoress, who has evidently joined the antivivisectionists, makes a fierce attack not only on those who directly make use of the lower animals for experiment, but her words are levelled against scientists in general; her villain is taken as the type of the modern man of science. He is a man without humanity, cruel, unsympathetic, knowing no other law than his own necessity.

The man of science of to-day, according to "Ouida," uses his wisdom as tyrants in former ages used their brute force. Speaking of him she says:

"The infliction of death was nothing to him. He was used to kill as he was used to torture, with profound indifference, with no more hesitation than he ate or drank, or fulfilled any natural function of his body. To obtain knowledge, even the approach of knowledge, he would inflict the most agonizing and most endless suffering without a moment's doubt or regret."

From his boyhood upward he had always lived in the "hells" created by modern science, "wherein the bodies of animals suffer, the souls of men wither and perish."

And so the scientist does not hesitate to inject into the veins of his sleeping friend, who was recovering from diphtheria, the toxin of the disease instead of the antitoxin, for, as the writer states, "what was the man lying sleeping there to him? Only an organism like those which daily he broke up and destroyed and threw aside. His professional conscience, which would have shrunk from giving the disease, did not shrink from making death certain where it was merely possible. He did but add a stronger poison to that which nature had already poisoned."

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According to "Ouida," for the scientist there is no such thing as crime or virtue, "only lesions of the brain and absence of temptation and opportunity." And so "there is no sanctity in life for the wise man; to kill a man who stood in his way was no more than to kill a mole." Of course, the modern man of science is a woman-hater; "he likes her best on the operating-table," and the villain in the story does not love the woman for whom he kills his rival, he merely wishes to have the satisfaction of dominating over her, and though she marries him it is a sort of hypnotic influence that forces her to it. All this brutality, according to the authoress, is engendered by the modern scientific laboratories, which "justify and make permissible any action, providing the catastrophe is deemed necessary to the operator." The doctor in the story is asked "if creatures to interest him must not suffer?" and he coolly replies "certainly;" and again he is asked if "there are not many men of science, many surgeons whose desire is to console, who care for the poor human material on which they work?" and the answer comes, "there are some, but they are not in the front ranks of their profession, nor will science ever owe them much."

What a libel on the noble men of science who have given their lives and their comfort, who have toiled day and night, that coming generations of men might have less sorrow among them. No mercy in science, no kindness, only egotistic brutality. Wrapping herself in the dignity of a prophetess, the antiscientist exclaims that "the time is nigh at hand when there will be no priests and kings but those of science, and beneath their feet the the nations will *grovel in terror* and *writhe in death*." We poor votaries of science had no idea that the reign of the kingdom of reason was so near at hand. We have been content to let others enjoy the good things of the earth while we starved and toiled; but if we are coming to our inheritance at last, and will have unlimited power, let us not worry any longer about the antivaccinists and the antivivisectionists. We will reserve them for the time when we can use them for experiment.

We would advise "Ouida" to organize an *antiscience* society, have the hands on the dial of progress turned back a few centuries, and any addition to our knowledge considered an offence punishable by death—the only form of cruelty permissible that of man to man. It is, indeed, a new teaching that would have us believe that all the strivings of a Claude Bernard, a Pasteur, a Virchow, and a Koch, served merely to gratify their own brutish, murderous tastes; that they were born murderers. No doubt Lombroso will be called in to show the stigmata of degeneracy in them, and the experimentalist will have his lineage traced back to the priests of the Inquisition, or perhaps to the cannibals, from whom it will be shown he inherited his terrible cruelty.

It is a very common idea among the laity that the surgeon loves to use his knife, and cares naught for the patient, and this popular idea has been taken hold of and fitted together with a few stock antivivisection-phrases, and applied by the writer to the whole of science. We hope that science will recover from this terrible attack.

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*Illegitimacy.*—Thirty-five per cent. of the children born annually in the city of Vienna are illegimate. According to the official statement, out of 46,000 births 16,500 are born out of legal wedlock. How does this compare with other cities and countries? In *Virchow's Jahrsbericht* we find that in 1893 in the whole of Germany there were 1,928,270 births, of which 176.352 were illegitimate, or 9 15 per cent., and in ten years previously the annual average was 9.29 per cent.

Bertillon claims that in Paris 80,000 families are living in harmony, although in a legal sense the parents have not entered into marriage. In all France, in 1893, 8 per cent. of births were illegitimate. In separate provinces of Germany, Königsberg for instance, which is near the Russian frontier, 10 per cent. of the births are illegitimate, whereas the province Posen, with its population largely composed of Poles, returns 9 per cent. in the cities and 5 per cent. in the villages. Hamburg, a seaport, has a rate of 11 per cent., while Stuttgart, in the southern part of Germany, returns 20 per cent. of illegitimate births.

In European countries some attempt is made to procure accurate returns on this and other questions in vital statistics, and consequently the figures presented are in some accordance with the exact condition of affairs; but in the United States we have no way of knowing anything about the subject, although most large cities pretend to keep records relating to the matter. In Philadelphia the Registrar of Vital Statistics records every birth as illegitimate in which the name of the father is not given, but as some 10,000 births fail to be registered each year, and as undoubtedly many of these are illegitimate, the figures published have little or no value. Thus in the last ten years 2 per cent. of the births registered are set down as born out of wedlock, the rate varying but little each year. In New York City statistics on illegitimacy have only been collected since 1891, and are still very incomplete; the birth-returns are likewise lacking in completeness. In 1894, 1069 births were recorded as illegitimate, or 1.9 per cent. of the total number registered. Cincinnati records 1.4 per cent. In the States of Vermont, Massachusetts, Rhode Island, and Connecticut the rate is 1.3 per cent., but here also the returns are very defective.

While in the large cities of America the immorality of the inhabitants is not so great as in the capitals of Europe, yet if the facts could be ascertained; perhaps we would have little to boast of. The standing army is, of course, at the bottom of much of the licentiousness in continental Europe. Acccording to Töply, in the Austrian army 65 in every 1000 men are under treatment annually for venereal diseases, in the French army 43 in 1000, in the German army 37 in 1000. In Vienna out of every 1000 persons treated in civil hospitals and dispensaries, 132 are afflicted with venereal disease, at least 16 per cent. of this being syphilis. Computed on the whole population, we find that 65 persons in every 10,000, exclusive of the soldiery, are treated in the hospitals of Vienna for venereal trouble, and in Copenhagen, where physicians are obliged to report venereal disease as other contagious diseases are reported, Hjelt states that 25 of every 1000 inhabitants are affected. Illegitimacy is sometimes as common in distinctly agricultural districts as it is in military towns, as statistics gathered by Leffingwell show.

Although the question of illegitimacy is largely one of a social nature, yet medical men come in contact with it from the fact that children born out of wedlock are sup-

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posed to have a higher death-rate than legitimately born children. The medical statistician, therefore, must recognize this condition as one of the possible causes of influencing health, but just why it should do so is another question. The desire for concealment on the part of the mother, the early abandonment of the infant, the poverty of the mother obliging her to work and leave her infant in the hands of strangers, or the farming out of the child, thus ridding herself of all responsibility—these and many other reasons are given for the increased rate of mortality. In France, where the unmarried mother is in a measure carefully looked after by the State, Blakie reports that illegitimate children thrive better than legitimate ones. Whether the State should take more pains to record illegal births or not is a matter for argument, many holding that the State has no right to subject the individual to such an inquiry. We have not been able to ascertain just why Vienna should lead the world in the greatest number of illegitimate births.

***Advertising for Patients*** is considered highly unethical for individuals. Why is it not also the same for hospitals? Are right and wrong matters of the number of people committing the deed? If it is wrong for one physician to seek to get ahead of others by advertising, is it less wrong, nay, is it not much more wrong, for a club of physicians (for nowadays that is about all a "hospital" means) to seek by the same means to get ahead of all the rest of their fellows? Here is a copy of a widely scattered circular begging and singing for alms and patients—*arma virumque cano*, it might be punningly entitled:

*The Board of Trustees of the ——— ——— of the city of ——— strongly recommends the following advantages offered to the public:*

Mill and factory owners, lodges, and beneficial associations can secure a bed at the ——— ——— for 365 days by paying $200, and upon averaging the days may have several patients in the hospital at the same time.

Subscription books can be obtained by working people of both sexes up to the age of fifty, subject to the regulations of the hospital, whereby, on paying an initiation fee of one dollar and monthly instalments of fifty cents, each subscriber may be treated in case of sickness entirely free of further charge. Heads of families and owners of factories should particularly recommend to their servants and employés to avail themselves of this excellent facility.

It will be noted that not a word is said as to discrimination. Like "saving grace," the institution is "free to all." Indeed, another part of the circular speaks warmly of the advantages "to the wealthier classes by the advantages of our home-like private rooms, whose number and comforts," etc., etc.

How very like a composite-store newspaper "ad." "A full line of all styles and qualities to suit every taste and pocketbook."

We also read: "While our annual expenses are increasing, our income remains far behind our requirements"—and this is just the condition of many of us—especially those of us who are not trustees, or who do not hold hospital positions. Ugh!

# REVIEWS.

A TEXT BOOK ON NERVOUS DISEASES. By American Authors. Edited by FRANCIS X. DERCUM, A.M., M.D., PhD., Clinical Professor of Diseases of the Nervous System in the Jefferson Medical College of Philadelphia. With 341 engravings and 7 colored plates. 8vo, pp. 1056. Cloth, $6; leather, $7. Philadelphia: Lea Brothers & Co., 1895.

THERE are not wanting good books on nervous diseases, but in none has the subject received presentation similar to that given it in the volume under review. The text has been prepared by 22 collaborators, and is cast into 34 chapters. General Considerations are dealt with most admirably by Weir Mitchell and F. X. Dercum; and C. A. Oliver treats of the Examination of the Eye from the standpoint of the neurologist. General Morbid States of the Nervous System occupy 3 chapters, which include excellent articles on Neurasthenia by F. X. Dercum; Hysteria by J. H. Lloyd; Nervous Affections following Railway and Allied Injuries by P. C. Knapp. In successive chapters E. D. Fisher deals with Diathetic and Toxic Affections of the Nervous System; W. Osler with Diseases the Direct or Indirect Result of Infection; W. Sinkler with Choreiform Affections; C. W. Burr with Local Spasm and Occupation-spasm; L. C. Gray with Functional Tremors, Paralysis Agitans, and Epilepsy. General Diseases of the Brain are discussed in 2 chapters in an article on Arrested Development and Malformations by N. E. Brill, and in another on Diseases of the Membranes, Sinuses, and Brain-tissue by F. X. Dercum. C. K. Mills treats with clearness and fulness of the Anatomy of the Central Cortex and the Localization of its Functions. Focal Diseases of the Brain occupy 3 well-executed chapters: Hemorrhage, Embolism, and Thrombosis by C. L. Dana; Tumors by M. A. Starr; Cerebral Palsies of Childhood by F. X. Dercum. Diseases of the Spinal Cord are considered in 3 chapters: General Affections by J. H. Lloyd and by M. Prince; Systemic Affections by F. Peterson. Peterson also treats of Palsy and Multiple Cerebro-spinal Sclerosis. F. X. Dercum presents Paretic Dementia and Syphilis of the Nervous System; W. Sinkler Diseases of the Nerves. Diseases of the Cranial Nerves are considered in 2 chapters, one by G. E. de Schweinitz, the other by C. A. Herter. Herter also discusses Diseases of the Spinal Nerves and their Plexuses. G. W. Jacoby has written the chapter on the Diseases of the Muscles; J. Collins that on the Trophoneuroses; C. W. Burr that on Trophic Diseases Associated with Pathological Changes in the Thyroid Gland; J. C. Wilson that on Symptomatic Diseases; W. W. Keen that on the Surgery of the Brain, Spinal Cord, and Nerves; and G. W. Jacoby that on Neuro-electrotherapeutics.

It may thus be seen that the list of contributors is made up largely of those entitled to speak with authority by virtue of special study or investigation in diseases of the nervous system, and the work is to be viewed as a representative American production. Not only has the editor contributed a considerable number of articles—and they are among the best in the book—but the influence of his hand is appreciable on nearly every page. The book labors somewhat under the disadvantages

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common to most composite works. The brilliancy of some of the articles exaggerates by contrast the weakness of others; while repetition of statement necessitates sacrifice of space, and diversity of opinion is calculated to confuse rather than to enlighten the ordinary reader. The illustrations are numerous and for the most part well executed; many are original.

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HANDBOOK OF THE DIAGNOSIS AND TREATMENT OF SKIN-DISEASES. By ARTHUR VAN HARLINGEN, Ph. B. (Yale), M.D., Emeritus Professor of Dermatology in the Philadelphia Polyclinic, Dermatologist to the Howard Hospital. Third edition, enlarged and revised, with sixty illustrations, several of which are in color. Philadelphia: P. Blakiston, Son & Co., 1895.

DR. VAN HARLINGEN'S *Textbook of Skin-Diseases* has been before the profession for several years, and that it has in a comparatively short time reached a third edition is good evidence of its popularity as a student's guide, and a work of ready reference for the physician.

As stated in the preface, the book has been considerably enlarged by the addition of new matter, both in the text and in many foot-notes, and an examination shows that a number of the original articles have been given a thorough revision. Several of the rarer skin-diseases are considered for the first time, and, although the accounts are very brief, sources of more extended information are pointed out to the interested reader. A variety of new illustrations has also been introduced.

In the present edition the author has retained the alphabetic arrangement of subjects, "with the object of ready reference in view," and no doubt also because there was no system of classification that fully met the requirements.

After some experience and a good deal of reflection on this method, the dictionary-method, of writing books, we are forced to believe that the plan is a bad one, and that an imperfect classification is better than none at all.

It seems that a classification, Hebra's for example, gives the student a more coherent idea of the nature of skin-diseases, whereas the alphabetic plan presents a large mass of unconnected facts that are difficult to remember and properly associate. Moreover, on the purely literary side, this kind of an arrangement lacks dignity and gives an impression of scrappiness that does not really exist. We sincerely believe that Dr. Van Harlingen would do himself only real justice if in another edition he would rearrange his book in accordance with some well-matured system of classification.

We have no fault to find with the manner in which Dr. Van Harlingen has dealt with the various subjects contained in the book. As would naturally be expected from the author, his views are sound, his information extensive, and in matters of practical detail the hand of the experienced physician is everywhere visible.

In reading this book it should be always borne in mind, as explicitly stated by the author, that it makes no pretensions to be considered a comprehensive treatise on dermatology, but rather that it is a handy volume for the physician and student; and consequently the pathology of cutaneous affections is but briefly considered, if at all, and unsettled questions in nosology and etiology, and other matters of interest to the specialist, receive but little notice. The illustrations in black and white are for the most part good, but the chromolithographs are not especially helpful. Although we must repeat that the alphabetic arrangement of the subjects is to be regretted, the work is a mine of carefully collected practical information, and will prove a valuable desk-companion to all who come in contact with skin-diseases.

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1. BLOOD SERUM THERAPY AND ANTITOXINS. By GEORGE E. KRIEGER, M.D. With illustrations. Chicago: E. H. Colegrove & Co., 1895.

2. IMMUNITY, PROTECTIVE INOCULATIONS IN INFECTIOUS DISEASES, AND SERUM-THERAPY. By GEORGE M. STERNBERG, M.D., LL.D., Surgeon-General, U. S. Army. New York: William Wood & Co., 1895.

FEW things illustrate more forcibly the stupendous zeal and activity of the present age than an inspection of the bibliography of antitoxins and immunity. In the short space of six years a literature of vast proportions has accumulated, to master which few have the necessary opportunity or leisure. The majority of physicians are compelled to obtain their information at second hand, and it is for their benefit chiefly that the books before the reviewer are written.

The little book of DR. KRIEGER covers very well the salient points on the subject of blood-serum therapy, dealing, as it does, with the theoretic questions, as well as with the practical applications of the new therapy in the two best-studied diseases, diphtheria and tetanus. Although the diction is somewhat quaint and "foreign," the matter is clearly presented, and the book warrants a careful perusal.

The work of SURGEON-GENERAL STERNBERG is divided into two parts. The first treats of immunity, the second of protective inoculation and serum-therapy. In the first part natural and acquired immunity are separately considered. The former, the author believes, is due to "a germicidal substance present in the blood-serum which has its origin (chiefly at least) in the leukocytes and is soluble only in an alkaline medium. Local infection is usually resisted by an afflux of leukocytes to the point of invasion, but phagocytosis is a factor of secondary importance in resisting parasitic invasion." Regarding the action of antitoxins in acquired immunity, the author does not give his adherence to either of the opposing schools, that represented by Buchner, which teaches that antitoxins are modified toxins and act by rendering the body-cells immune to the toxin, or that of which Behring and Roux are the chief exponents, and according to which the antitoxins are produced by the body-cells and act, as Behring at least maintains, by neutralizing the toxins directly. The source and method of production of the antitoxins in the animal body and their mode of action are still undetermined.

In the second part the author deals with the infectious diseases in which experimental immunity has been produced in man and animals, or in which attempts at its production have been made. Of human diseases, cholera, diphtheria, hydrophobia, influenza, pneumonia, smallpox, streptococcus-infection, tetanus, tuberculosis, typhoid fever, and yellow fever are discussed.

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The volume will prove very useful to everyone interested in the absorbing subjects of immunity and serum-therapy, and it is rendered doubly valuable by the extended bibliography appended to each chapter.

MEDICAL GYNECOLOGY. A TREATISE ON THE DISEASES OF WOMEN FROM THE STANDPOINT OF THE PHYSICIAN. By ALEXANDER J. C. SKENE, M.D., Professor of Gynecology in the Long Island College Hospital, Brooklyn, New York, etc., etc., etc. With illustrations. Pp. 529. New York: D. Appleton & Co., 1895.

IN these days, when the cry is almost entirely for surgical interference in the pathologic conditions of womankind, a book of the nature of the present volume carries with it an agreeable freshness that is more than attractive. It must be evident to all that but a very limited number of physicians are so qualified by training and convenient environment as to become practical abdominal and pelvic surgeons, while it is incumbent upon all who are actively engaged in the practice of medicine to be fully acquainted with the methods of diagnosis and the medical treatment of the minor gynecologic complaints, and to be so well prepared to recognize the initial stages of the graver conditions as to summon the skilled abdominal surgeon before the time for operative procedure has passed. To all such is Dr. Skene's admirable work most cordially recommended. The book is especially rich in the description of methods of treatment of neurasthenia and other nervous affections to which so large a proportion of women are heirs. Unfortunately, however, as we think, by far too much prominence is assigned the subject of electricity in gynecologic practice, in which, as is now largely admitted even by its former most earnest advocates, it has but a limited scope. Especially would we recommend, on the other hand, a careful study of the section on the application of massage to gynecologic conditions, a subject that is comparatively but little known, and the immense value of which is beginning to be recognized. Diet in gynecology and a suitable regimen for aged women are also ably disposed of. The illustrations, while few in number, as would be expected from the nature of the subject-matter, are good, and the general arrangement of the book is excellent.

## CORRESPONDENCE.

### *THE VIVISECTION-CONTROVERSY.*

*To the Editor of* THE MEDICAL NEWS,

SIR: As a subscriber to THE MEDICAL NEWS, I have always found its columns both entertaining and profitable; but I must confess to a little disappointment in your long editorial of Nov. 30th, and its references to myself. I venture, therefore, to ask the courtesy of your columns, less for reply to your criticisms than for explanation of apparent inconsistencies.

It does not seem to me, in the first place, that your summary of my paper concerning the manifesto of the Harvard professors is as fairly set forth as the facts would warrant. Permit me to state them.

On the 13th of last July there appeared in the Boston *Transcript* a long article "Concerning Vivisection," signed by the Assistant Professor of Physiology in Harvard Medical School, and drawn up at the suggestion of five other leading professors. It distinctly claimed to be "a plain statement of *the whole truth*" regarding experimentation on living animals; and, referring to the occasional necessity of painful investigations, it went out of the way to make the strange assertion that "none such have been made in the Harvard Medical School within our knowledge."

Now this statement was either true—or untrue. I doubted its accuracy, and in the columns of the *Transcript* of July 22, I called attention to this most peculiar assertion. Surely a mistake had been made? But no explanation came. The oracles had spoken; the public must implicitly believe. Confronted with a statement like this, made by men of the highest scientific reputation, what is one's duty simply as a lover of truth? To accept it? To be silent? I must not decide for others; but, to me, it seemed that refutation was demanded in the interests of Science herself. You say, sir, that I have "given the lie" to men whose "names and work are well known in all the scientific world." You are mistaken; I am not given to overstepping thus the amenities of discussion. But I brought out "in bold relief some of the more or less shocking features of the experiments" in Harvard Medical School, without at the same time touching either the object of the investigation or the results obtained. I admit it. Pray, what had these to do with the one question of the *painlessness* of the vivisections? How can there be any "shocking features" to *painless* research? The truth is, somebody blundered, and was too proud to confess it, even when confronted with the proof. That may be taken as fidelity to science; everyone must judge for himself. At all events it is not my ideal of what truth demands.

Your comments upon the preliminary report of the American Humane Association would be more satisfactory if they could have been based upon the complete report, now in the printer's hands. I do not think that any scientific man, physician or otherwise, need be ashamed to find his name—where I place my own—beneath that of Herbert Spencer, in favor of vivisection regulated by law.

And, finally, permit me gently to protest against being classified by you or anybody else as an "antivivisectionist." Is there no middle ground within the scope of imagination? Cannot a man be temperate without being a teetotaler? It is fifteen years since I first wrote on this subject, and never a line that denied the utility or the rightfulness of vivisection, *per se*. But what I do abhor and execrate is the licence, cruelty, and abuse that I have seen for myself. Does THE MEDICAL NEWS deny that abuse exists? I wish denial were possible. Let me cite admission by a writer who has most accurately represented my views regarding this whole question. It is from a work that I have long admired for its bold and reverent treatment of one of the deepest problems with which the human intellect can engage; a work which I believe will be better known a century hence than it is to-day: "If," he says, with significant caution, "if a very limited use of vivisection-experiment is necessary for scientific and medical progress, *it must be regulated by law*, carried out with jealous guarding against excess and against suffering, and the maimed animals painlessly killed when the experiment is complete. The

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practice carried on by conceited jackanapes to prove over again already ascertained results, *to minister to egotism*, for didactic purposes, *these are not necessary, and must be forbidden*."

There, sir, is a fair expression of my sentiments regarding vivisection. I have never denounced abuse with greater vigor, nor asked for more stringent regulation than is here demanded.

I am, sir, etc.,

ALBERT LEFFINGWELL, M.D.

CAMBRIDGE, December 3, 1895.

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We regret that we classed Dr. Leffingwell among the prohibitive antivivisectionists, as this was an error. But we do not think he allows sufficient credit for the scientific beneficence that has come through vivisection. He seems to be somewhat blinded to this aspect—to the uses—by the fervor of his indignation against the abuses.

In addition to the foregoing letter, we have received others—one protesting that for teaching physiology vivisection is highly necessary; another that the methods of obtaining information by the Humane Association were not thorough, etc. It seems to be a difficult matter for men to consider this question dispassionately, and the extremes of opinion of most worthy people tend to make one despair of the reasonableness of *homo*, and of his ability to ascertain truth. It is especially difficult to preserve one's aplomb under such criminal logic and falsetto screams as *Life* and "Ouida" treat us to. The judicial quality of mind is in danger of being lost, and one feels tempted to roar one's self hoarse with the anti-antivivisectionists. But neither would this do any good. If we are men we must seek the truth, and all of that partial truth to be found in partisans. Undoubtedly abuses, deplorable abuses, have been perpetrated by vivisectors—and just as undoubtedly the antivivisectors have been guilty of excess, *e. g.*, in trying to do away with the use instead of the abuse. We do not think that vivisection for didactic purposes or for acquiring operative skill would, uncontrolled by legislation, yield probable good results to outweigh the probable evil results. Assuredly the modern sentiment of kindness to animals is one of the best things gained by civilization. Just as certainly have there been splendid gains in the relief of human suffering and disease that were impossible to reach except through vivisection. The task of wise and good men is to preserve and carry on both gains. One need not scream with the anti's nor roar with the anti-anti's. Reasonable men know the excellence of moderation.

There is much woful confusion of ideas as to what is really meant by vivisection. It is very evident that the disputants often set up their own imaginative concepts, and viewing them as realities fight for or against them, *vi et armis*. The larger number of vivisection-experiments consist simply in the painless death of animals. They are not *vivi-sections* at all, but *mortui-sections*.

Professor Wilder has also devised two excellent words which should come into general use, because they make clear a necessary distinction. They are *callisection*, or *painless vivisection*, and *sentisection, i. e., painful vivisection, or that without the use of anesthetics*. No meat-eater, except the most egregious ranter, can object to postmortem dissection. No sensible person can object to callisection for proper purposes. The only question remaining pertains to sentisection, and if silly controversialists would stifle their stupid frenzies and look at facts, they would soon find that decent people differ but little about the matter, and that there has been a very childish quarrel, of which both sides should be ashamed.

Now antivivisectionists are not vegetarians, but generally meat-eaters. They do not, therefore, object to the death of animals, and if we may judge, we fear they are far more critical of the manner of death in laboratories than in slaughter-houses. They even wear—as we suppose—woolen clothing, although there is seldom greater suffering possible than often exists in the exposure of freshly-sheared sheep. There is more suffering in the transfer of a single shipment of cattle from their Western plains to England than has ever taken place in all the laboratories of all the world. All of which by no means justifies the—comparatively few—horrible abuses of scientific vivisection of which men have been guilty, who have clothed the wolf of their vanity and ambition with the sheepskin of pseudo-science. Nor can we forget that within a year a physician, a leader in science, if not in medicine, has in reference to vivisection publicly uttered these infamous words: "I certainly think that children and everyone ought to be familiarized with the sight of blood, the pangs of disease, and the solemn event of dying." It is such atrocities as this, few and non-representative as they are, that offset the silly and stupid ravings of shortsighted sentimentalism on the part of lay-enthusiasts. Let us have done with both sorts of egregious extremists.—[EDITOR, MEDICAL NEWS.

## TOXIC EFFECTS FROM ACETANILID APPLIED TOPICALLY.

*To the Editor of* THE MEDICAL NEWS,

SIR: I have read with interest, in THE NEWS of November 16, 1895, the Progress-note upon "Toxic Effects from Acetanilid Applied Topically." A short time ago I was called to see a child, five months of age, that was extremely cyanosed, with a pulse of seventy-five beats to the minute. Nothing else abnormal could be discovered. The child did not seem to be in distress in any way, but quiet and comfortable. No medicine had been given internally. The heart was normal excepting for its slowness, and at birth no irregularity was noticed. Upon close inquiry it was found that the mother had obtained from a neighbor a white powder, which proved to be acetanilid, and had applied this freely to the groins of the child, which were badly irritated. The following day the cyanosis appeared. Upon the withdrawal of the drug the pulse and color became normal.

Respectfully,

J. A. BROBERG.

DELAVAN, MINN.

## THE INDEX MEDICUS.

*To the Editor of* THE MEDICAL NEWS,

SIR: We ask permission to state that the plan proposed for continuing the publication of the *Index Medicus* having been successful, no more subscriptions can be received.

JOHN S. BILLINGS, M.D.,
ROBERT FLETCHER, M.D.,
*Editors.*

WASHINGTON, D. C., Nov. 27, 1895.

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# SOCIETY PROCEEDINGS.

## SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

*Eighth Annual Meeting, held in Washington, D. C., November 12, 13, and 14, 1895.*

(Concluded from page 643).

DR. A. VANDER VEER, of Albany, N. Y., read a

### REPORT OF SEVEN CASES OF ABDOMINAL SURGERY IN WHICH THE MURPHY BUTTON WAS APPLIED.

The first case was one in which an anastomosis between the upper end of the jejunum and the greater curvature of the stomach was made for carcinoma of the pyloric extremity of the stomach by means of a medium-sized Murphy button. The patient was comfortable after the operation, but died from exhaustion on the third day.

The second case was one of carcinoma of the sigmoid flexure, removal and end-to-end anastomosis. The operation consisted in removal of a mass three inches in length in connection with the sigmoid flexure, and an anastomosis of the large intestine by means of the button. The cause of constriction was found to be carcinoma. The patient died from exhaustion on the eleventh day, but was much exhausted and emaciated previous to operation.

The third case was one of removal of stones from the gall-bladder, using a long drainage-tube button. In this case recovery ensued.

The fourth case was one of removal of eight inches of the small intestine, together with a papillomatous ovarian cyst. End-to-end anastomosis was effected with the button and recovery followed.

In the fifth case an anastomosis was established between the gall bladder and the small intestine, with recovery.

In the sixth case operation revealed a tumor the size of a cocoanut in the immediate vicinity of umbilicus, a portion the size of a silver dollar implicating the umbilicus and being in a gangrenous condition. On making an incision there was found a strangulated hernia and many old and firm adhesions. The peritoneum was intensely congested and very dark in color. A loop of small intestines was included in the tumor and gangrenous for a length of ten inches. The vessels in the mesentery were secured and this portion of the intestine was excised. A Murphy button was used for end-to-end anastomosis. The button was passed thirteen days after the operation, and was followed by a large movement of the bowels. Uninterrupted recovery ensued.

In the seventh case a diagnosis of biliary calculi was made. The usual incision was made for exploration of the gall-bladder, which was found to contain about two ounces of bile. Through the walls of the viscus and down into the cystic duct could be felt a number of small calculi. There were some adhesions. The long drainage-tube button was introduced into the fundus of the bladder and the wound closed, after a careful examination for any possible carcinomatous mass, which, however, was not found to be present; the patient was then placed in bed. The use of the button in this case was regarded as a saving of time, leaving the patient in good condition for removal of the gall-stones later. Several days afterward the attending physician removed five irregularly shaped calculi, which Dr. Vander Veer exhibited. At this time the patient began to show marked symptoms of cerebral anemia, with delirium, finally passing into a comatose state and death resulting.

Dr. Vander Veer said that the cases reported, although not many, yet covered a field in which the Murphy button might be made use of readily and easily and with satisfactory results. The Murphy button will not answer for every lesion involving the intestinal tract; but it surely has its sphere of usefulness, as it is clean, easily handled, and saves the patient from a much longer operation, when time alone is the great desideratum.

DR. H. H. GRANT, of Louisville, followed with a paper entitled

### INTESTINAL RESECTION AND ANASTOMOSIS.

He said that there had always been a division of judgment upon the question of immediate suture in acute obstruction or injury requiring resection of the intestine which even the improvements in technic and means of aid in operative work have not adjusted. What it is intended to do with the Murphy button it does well; but too often it does what is not intended, and disaster and death result. There is abundant evidence that it becomes a foreign body; that it occasions spreading necrosis, which involves the peritoneal coat; that recontraction takes place after lateral anastomosis; that fatal results are frequently directly attributable to its use, beside other less important objections.

Lateral anastomosis is now beyond all question the most acceptable method of resection in the continuity of the bowel, if we exclude the button. It is best accomplished by direct suture, and direct suture is difficult of execution except in very skilled hands. In order to facilitate direct suture, Dr. Grant presented a device for clamping opposing surfaces of the bowel, cutting off fenestra between them, and retaining them so opposed until the suture can be completed. He then demonstrated the *modus operandi* of this device.

He had experimentally used the clamp sixteen times with fourteen consecutive recoveries, but had had but one opportunity to use it in practice. On May 25th he operated on Mrs. E., aged 53 years, who had a fecal fistula at the right femoral opening, the result of a strangulated hernia, operated on eight months before. An incision was made just above Poupart's ligament, near the fistulous opening. The fingers easily liberated the intestine, which presented an opening occupying half its lateral surface and as large as a quarter of a dollar. The mesentery was greatly thickened; the distal segment of the bowel was reduced in size, the proximal dilated at the site of the fistula. The intestine was resected for a distance of about four inches; the blades of the clamp were applied opposite the mesenteric borders of each segment, and the anastomosis made in the manner described. After suturing, the communication between the opposing surfaces was found ample. The cut ends were then invaginated and the anastomosis returned; the abdominal wall closed with silkworm-gut sutures; the site of the fistula curetted and filled with iodoform-gauze; and the patient put back to bed in forty-

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two minutes. There was very little shock. At the present time the patient is well.

The advantages of this method over the other aids, except the button, are manifest. Not only does it do away with the foreign body, but it makes an opening three or four inches long at the fenestra. It is as easily accomplished and takes less time. It is no more difficult to use than is the button, but the operation cannot be so quickly completed, as the invagination of the ends is not necessary after the end-to-end approximation with the button. The clamp merely makes direct suture easy to an ordinarily skilled hand.

DR. C. A. L. REED said experience would establish the fact that the Murphy button ought not to be used in approximation of the large intestine, for the reason that the intestinal contents were not sufficiently liquid to pass through the small opening in the button. In the small intestine the liquid contents will pass through the opening in the button and the approximation is satisfactorily accomplished. Dr. Reed reported a case of resection of the sigmoid flexure for malignant disease (which terminated fatally) in substantiation of his remarks, the anastomosis being made by means of the Murphy button. He commended the device presented by Dr. Grant, and, although he preferred the end-to-end procedure, he would try the device in the next case in which he performed lateral anastomosis. Cholecystenterostomy by means of the Murphy button was one of the easiest, neatest, and altogether most satisfactory operations known to surgery.

DR. JOSEPH M. MATHEWS, of Louisville, said that he had taken occasion more than once to call attention to the difficulty that attends the diagnosis of tumor of any kind in the sigmoid flexure. Time and again he had been mistaken, as he believed others had, in supposing that he had malignant tumor of the sigmoid when he had not, and supposing, on the other hand, that he did not have this when he really did. A few years ago a patient was brought to him from an adjoining State, and from evidence outside of palpation he believed that the man had malignant trouble of the sigmoid flexure. A few days thereafter he was taken to Chicago, was examined by a very eminent surgeon, who stated positively that there was no tumor of any kind in the flexure, and advised the patient to go home and go to work. In less than a week the man was dead. An autopsy revealed carcinoma of the sigmoid flexure. His reasons for opposing resection of the sigmoid and making anastomosis by the Murphy button were in substance the same as Dr. Reed's. Carcinoma in the sigmoid flexure was not only usually attended with systemic infection, but there is an involvement of other organs and tissues of the body. He would therefore ask, could a man live any longer after a surgeon had removed the tumor than he would if it was left untouched? Granting that there is total obstruction, would it not be better to perform colotomy and let the man live out his allotted days with carcinoma in a more pleasant way than he would if an operation were done? In lieu of this, it had occurred to him that the plan suggested by Dr. Bacon, of Chicago, of anastomosing the colon with the rectum, leaving the growth there, would be a more favorable operation than extirpation of the carcinoma.

DR. A. M. CARTLEDGE, of Louisville, said that in doing a cholecystotomy there was not much time saved by using the Murphy button, and it was not as useful as ordinary methods of suturing. He thought that this was well illustrated in one of the cases reported by Dr. Vander Veer, in which there was a passage of stones after the operation, and in which the button was necessary on account of the extremely feeble condition of the patient. In cases with numerous small calculi extending into the cystic and common ducts, he had made a comparatively large incision in the gall-bladder and sutured the margins to the peritoneum, when the stones could not be removed, and they would then pass for days externally through the drainage-tube. The orifice in the button is too small to permit the stones to pass, whereas they would escape through a drain and come out. He expressed himself in favor of Dr. Grant's device, and considered it an excellent one for lateral anastomosis.

DR. W. E. B. DAVIS believes that the Murphy button can be used to advantage in intestinal work when it is necessary to perform operations quickly; otherwise the method of stitching similar to that practised by Abbe is better, more certain, and accidents are not so likely to follow as from the use of a mechanic appliance which is non-absorbable. Cholecystenterostomy by the button should be resorted to only in those cases in which it is impossible to remove the obstruction in the common duct. The old method, as pointed out by Dr. Cartledge, is decidedly better in the other class of operations.

DR. VANDER VEER, in closing, was satisfied that end-to-end anastomosis with the button in the large intestine was not likely to be a satisfactory procedure on account of the reasons mentioned by Dr. Reed. He believed Dr. Grant had presented an appliance that would be of value to the profession. The fact that new devices for intestinal anastomosis were being presented from time to time before medical gatherings was ample evidence that we had not yet reached an ideal method. The Murphy button is an excellent device for the performance of cholecystenterostomy and other operations.

DR. GRANT believes that any surgeon of ordinary skill, after having the two surfaces of the bowel directly opposed, can with his device suture them without soiling the peritoneum or letting them slip away.

DR. J. MCFADDEN GASTON, of Atlanta, Ga., read a paper on

SURGICAL INTERFERENCE IN RECTAL DISORDERS.

He said that the practicability of eradicating rectal troubles of syphilitic origin by medication is a mooted point, and with the present light on the subject it seems justifiable to resort to such a surgical measure as the condition indicates, while constitutional treatment is being carried out in the case. There are instances of supposed development of specific disease in the form of stricture of the rectum, after the lapse of many years subsequent to any syphilitic contamination, and some authors claim their ability to diagnosticate specific stricture even without a previous history of primary syphilis. Strictures of the rectum from fibrous deposition in its walls call for division or excision of the structures involved. When carcinomatous induration of the rectal tissues is detected early there is encouragement to undertake an operation, but after the breaking down of the neoplasm, with infiltration of the surrounding structures, no benefit is derived from excision of the parts involved. The rectum affords material for surgical work of the

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most important character, and it should not be relegated to those professing to deal with so-called "orificial" surgery.

The burning and urgent need of the surgeon is a definite settlement of the issue as to active interference in cases of pronounced carcinoma of the rectum. Shall we content ourselves with the palliative measure of inguinal colotomy and leave the diseased structures untouched, as urged by Dr. Mathews, or shall we endeavor to remove all the tissues involved by extirpation, as recommended by Dr. Gerster? The full statistics of results in the hands of skilled operators ought to be collected and a fair analysis made before a final adjudication of the question is reached. The materials for such a comparison should be obtained from special hospitals for the treatment of carcinoma in this and other countries, as well as from general hospitals receiving and treating this class of patients; being grouped together, a fair inference may be drawn as to the feasibility of active interference in any case of carcinoma of the rectum.

DR. J. M. MATHEWS said that he was glad the essayist had alluded to fissure of the rectum giving rise to reflexes, as to have such reflexes there must be a pathologic condition. The so-called "orificial" surgeons had run wild with reflexes from the normal rectum, and as a consequence many respectable citizens had lost healthy rectums. Dr. Mathews' observations had been that benign rectal stricture is very seldom met with. When found, it is simply an annular constriction of the mucous membrane, which is easily dissipated and does not require excision. When the surgeon introduces his finger into the rectum and finds a stricture it betokens one of three serious diseases—syphilis, tuberculosis, or carcinoma—and the patient should not be turned aside with a jesting remark that he has a rectal stricture. Dr. Mathews maintains that 60 per cent. of the cases of stricture of the rectum arise from syphilis or are the result of it. He had asked his professional friends to investigate this matter and make known their investigations. The responses he had received were nearly all in the affirmative. He regards syphilitic stricture of the rectum as more frequent than either carcinoma or tuberculosis. As in nearly every instance of carcinoma blocking the rectum to the sigmoid flexure we have systemic infection, can a cure be expected from surgical interference? It is to be wished that the rectum could be successfully removed for carcinoma.

DR. H. M. NASH, of Norfolk, Va., had seen a number of cases of ulcer of the rectum cured by dilatation of the sphincters and topical applications. He uses the Sims speculum, placing the patient in the exaggerated Sims position, which gives the operator all the room he wants for manipulation in the rectum.

*Afternoon Session.*

DR. GEORGE H. NOBLE, of Atlanta, Ga., read a paper entitled

ONE-HUNDRED-AND-SIXTY-SIX CASES OF CARCINOMA OF THE PREGNANT UTERUS OCCURRING SINCE 1886.

The author's attention was directed to this subject by four cases that came under his observation, and his success in dealing with them had encouraged him to look more carefully into the treatment. As a result he had collected one-hundred-and-sixty-six cases of carcinoma of the pregnant uterus which had occurred since 1886, the time of the Barr Thesis. Dr. Noble confined himself mainly to the statistics of the treatment and results, referring to Barr, Cohnstein, and others for information concerning the age, the period of recurrence, the period of abortions, etc. There were twelve partial amputations of the cervix in the seven months of pregnancy, averaging five-and-a-half months; almost all of the mothers recovered from the operation; 66.6 per cent. went to full term, one child dying subsequently; and 41.6 per cent. aborted. Two mothers had subsequent operations performed for removal of carcinoma, but there was recurrence in both cases. Another conceived a second time and died thirteen days after confinement, of peritonitis. Of the three cases of intravaginal amputation of the cervix, two recovered from the operation, giving a mortality of 33.3 per cent.; the children the same. One mother died of peritonitis; one died suddenly six weeks after confinement; and the third had two subsequent operations for the removal of the malignant disease, making an ultimate mortality of 66.6 per cent., and possibly 100 per cent. The intravaginal amputations give a combined mortality from operations: of mothers 19.3 per cent., of infants 40 per cent. Sixteen supravaginal hysterectomies were done prior to the seventh month, with a mortality of 6.2 per cent.; six had recurrences of the disease, three had no return, and seven were not observed. Of the sixteen cases in which the records were complete, thirteen cases were lost, a mortality of 81.3 per cent. Of the remaining three, one went to full term, and in the other two the result was not mentioned. One case aborted thirty-five days after conception, aborted again in forty days, conceived a third time, was delivered normally, and was well five years afterward. There were 23 vaginal hysterectomies. In two cases the results were not recorded, leaving 21 cases, all successful. There were seven cases of vaginal hysterectomy in the puerperal period from fourteen to twenty days after abortion or delivery; all recovered.

The total number of abdominal hysterectomies was 16; in 12 of these Freund's operation was performed; in one Mackenrodt's method was followed; the remainder are not described. Of this number 7 died from the operation, making a death-rate of 43.7 per cent. One case had enchondroma of the pelvis, another had return of carcinoma in one year, and a third had a return in a few months, and died seven days after an operation for ileus due to carcinoma of the intestines. These three are the only ones with complete records; therefore it is impossible to give an estimate of the ultimate recoveries. The products of conception were all lost.

Cesarean section was done forty-three times, as follows: Conservative (or Sänger), 26; Porro, 9; Freund's, 8 times. Of the 26 conservative operations 16 died and 7 recovered; in two the results are not recorded, and one was dead before the operation was performed.

The number of recoveries after the Cesarean-Porro operations was four, of deaths five, the mortality of 55.5 per cent. In eight Cesarean sections by the Freund method there were three recoveries and five deaths, giving a mortality of 61.1 per cent.

A short summary shows (1) that vaginal hysterectomy should be safe in the early months of pregnancy and the puerperal state, when there is a reasonable

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hope for the mother. (2) That abdominal hysterectomy should be done when the uterus is too large to be rapidly and safely removed through the vagina. (3) That at or near the end of pregnancy Cesarean section should be resorted to, when the child's interest is to be considered. (4.) That Cesarean section with Freund's operation is permissible when the disease is confined to the uterus and the child is viable. (5) That in doubtful cases cutting of the cervix and rapid delivery may be judicious when the incision can be made in non-ulcerated or non-infiltrated tissue. (6) That as there are four chances to one against the life of the fetus, and as an equal number of mothers may be ultimately cured in the early stages of the disease, the safety of the fetus should not be allowed to hazard the life of the mother; and that, upon the other hand, the futile efforts directed to the interests of the mother, when her case is hopeless, should not jeopardize the safety of the fetus in the latter months of pregnancy.

DR. HOWARD A. KELLY, of Baltimore, said that carcinoma of the pregnant uterus is rare. He had seen but three cases. If the new-growth is seen in the early stage, when it presents itself as a mere nodule on the cervix, not apparently extending into the broad ligaments, and pregnancy is approaching, it would be safe to let pregnancy go on to full term, and labor to take place naturally. On the other hand, if the carcinoma has advanced to such an extent that there is a possibility of involvement of the broad ligaments, the surgeon could not operate too soon, because under the conditions of pregnancy the growth of carcinoma of the cervix is much more rapid than it is ordinarily.

DR. VANDER VEER, of Albany, stated that four years ago he operated on a case, doing a vaginal hysterectomy. Pregnancy had advanced about four months. He felt happy about the case for two-and-a-half years, at the end of which time carcinomatous nodules presented themselves at the site of the cicatrix. Pregnancy had advanced to full term. The patient lived for a period of eight months. The pelvis was filled with a carcinomatous deposit. Dr. Vander Veer reported another case of carcinoma of the pregnant uterus, and, while the patient recovered from the removal of the uterus, she subsequently died from recurrence of the disease.

DR. E. S. LEWIS, of New Orleans, contributed a paper entitled

### HYSTERECTOMY FOR FIBROIDS.

He said that hysterectomy for fibroids, now a justiable and recognized operation for the preservation of health, the prolongation and the saving of life through important operative procedures, minimizing the element of risk, had reached its present enviable position by the substitution of direct ligation of the uterine arteries for the unsatisfactory methods heretofore employed to secure immunity from hemorrhage, these measures often failing to prevent bleeding; and not infrequently there was exposure to infection through the region of the cervix. Complete hysterectomy, whether by the vaginal route in fibroids of moderate size, through the abdomen in certain cases, or by the combined abdomino-vaginal method in other instances, heralded a brighter era for the future of hysterectomy. That exceptions might occur with regard to individual cases, rendering the complete operation inadmissible, he was prepared to admit.

The author then reported eight cases in which the complete operation was practised:

CASE I was in a woman, aged fifty-three years. The tumor was of the size of a seven-months' pregnancy. Operation was performed March 11, 1894. An incision was made from the pubes to two inches above the umbilicus. The omentum was detached from the anterior surface of the tumor to which it was adherent; a portion of the omentum was ligated and cut off on account of free oozing. The sub-peritoneal fibroid attached to the fundus was lifted out, and the upper portion of the ligaments ligated and divided. The bladder was then detached, and the vaginal roof opened in front and behind. The lateral vaginal connections and lower portion of the broad ligaments were transfixed and ligated with a double ligature and the uterus freed. One suture was passed through the middle of the vaginal vault. The abdominal incision was closed, and the vagina loosely packed with iodoform-gauze pushed above the vaginal roof for drainage on account of some slight venous oozing. The tumor weighed 25 lbs. This patient made a satisfactory recovery.

CASE II was in a woman, forty-three years of age, who had profuse uterine hemorrhages. The uterus was as large as a five-months' pregnancy from the presence of an interstitial fibroid. The endometrium was curretted and iodin injected without relief. Hysterectomy by the vaginal method was performed, and recovery ensued.

CASE III was in a patient aged sixty-three years. A diagnosis of interstitial fibroid with carcinoma of the cervix was made. The uterus reached to the middle of the hypogastrium, and was about the size of the tumor in the preceding case. Its removal was easily effected in the same manner. The ligaments were secured with clamps. The fibroid, about the size of an orange, was not weighed. Recovery followed.

CASE IV was in a patient aged forty-four. The uterus was enlarged from the presence of a number of small fibroids. Vaginal hysterectomy was performed, and followed by recovery.

CASE V was in a patient aged thirty-five years. A diagnosis of uterine fibroid, reaching to the umbilicus, was made. Recovery followed operation.

CASE VI was in a patient aged forty-two, who presented a large uterine fibroid of the size of an eight-months' pregnancy. Vaginal hysterectomy was performed.

CASE VII was in a patient aged forty. A diagnosis of subperitoneal fibroid attached to fundus was made. The same operation was performed as in the preceding one.

CASE VIII was in a colored woman, who presented a fibroid affecting the body of the uterus, and as large as a six-months' pregnancy.

DR. HOWARD A. KELLY, of Baltimore, made some remarks on the

### TECHNIC OF SUPRAVAGINAL HYSTERECTOMY.

He described a new method of hysterectomy, by which the uterus, ovaries, and tubes are removed through the abdomen. It is a modification of the Baer method. He had tested it in about one-hundred-and-fifty cases of all kinds, and had operated in the presence of hundreds of practitioners. While he had not heretofore described it, he had briefly referred to it before the Section on Ob-

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stetrics and Diseases of Women at the last meeting of the American Medical Association.

DR. JOSEPH TABER JOHNSON, of Washington, D. C., followed with a paper entitled

SEVENTEEN CASES OF HYSTERECTOMY.

He said that the first successful hysterectomy ever performed was done by Dr. Burnham, of Lowell, Mass., in 1853. Kimball, who assisted Burnham in his first case, subsequently operated with success after a correct diagnosis had been made. In 1875 Kimball reported nine hysterectomies with three deaths. Burnham had then done sixteen hysterectomies with four deaths. These results were considered fairly good at that time. In 1878 Gusserow reported that up to 1866 Kœberle had lost all but eight out of forty-two hysterectomies, giving him a mortality of 81 per cent. Schrœder collected reports of 108 hysterectomies with a mortality of 85.3 per cent. Thomas, in his *Diseases of Women*, reports 24 cases with 18 deaths. Storer, in 1874, reports 10 American hysterectomies, all fatal. From 1874 to 1894 many changes were made in the technic, including asepsis, the Trendelenburg position, the intrapelvic but extraperitoneal treatment of the pedicle, the closure by suture of the separated edges of the broad ligament, drainage when necessary through the vagina after total extirpation, and these have all had their share in diminishing the mortality.

In the June number of the *Annals of Gynecology*, Cushing published a report of 1670 suprapubic hysterectomies done by American operators, with a mortality of 13.8 per cent. One of the improved methods of widening the scope of this beneficent and magnificent operation and greatly reducing its mortality was introduced, advocated, and practised by Dr. B. F. Baer, of Philadelphia, who is quoted in Cushing's article as having operated 78 times with 71 recoveries and 7 deaths.

Dr. Johnson presented his paper for the purpose of reporting 17 operations by Baer's method with 16 recoveries and one death.

DR. HENRY O. MARCY, of Boston, agreed with Dr. Johnson that the method of operating by the Kœberle clamp had been shown to be absolutely wanting in this type of operation; that it is not easier of execution except in very few and rare cases; that it is ill advised and subject to serious dangers.

In reference to the operation described by Dr. Kelly, he desired to refresh the memory of the members that in 1880 he published a paper in which he reviewed the various steps and pointed out the advantages of the operation which is now known as Baer's. In the International Medical Congress of 1881 he presented a second paper in which he emphasized the value of the operation. The advantage of leaving the stump was a great gain in the subsequent result, in that it left a sort of fixation-point between the uterus, rectum, and bladder. It is of value again in that it does not shorten the vagina —a question of paramount importance in reference to marital life and to the conditions that may follow in the subsequent history of the patient. He was sure that surgeons were working on the line of great and general improvement, and that when the technic of this operation has been developed more thoroughly the time will be when the removal of large fibroid tumors of the uterus can be accomplished with equal safety as the removal of large ovarian cystomata.

DR. RICHARD DOUGLAS, of Nashville, said that one advantage of the procedure described by Dr. Kelly was that the bladder was out of the operative field, the surgeon not having to handle that viscus; that the operator could open the broad ligament and remove intraligamentary fibroids without difficulty and without danger. Another important feature was that the risk of ligating the ureter was greatly reduced.

DR. W. E. B. DAVIS, of Birmingham, believes that most surgeons are now inclined to accept the intra-abdominal method of operating, although it was still a question whether we shall have a pedicle or shall go in through the vagina. A very important point related to the time of these operations. He has seen Dr. Kelly operate and admired his manual dexterity; but to take out the uterus in six or seven minutes meant very little, when it takes an assistant, or an operator himself, an hour or more to complete the balance of the operation. At the last meeting of the American Medical Association he saw Dr. Kelly remove the uterus by the method he had described in something like seven minutes, but it took an assistant one hour and twenty minutes to finish the operation. It was no reflection on Dr. Kelly's skill as an operator, but he thought the matter of time should go on record in a little different way.

DR. A. VANDER VEER, of Albany, remarked that in 1889 he removed the uterus somewhat in the manner described, the case having been already recorded. He had done the operation only twice since. He uses the Kœberle clamp because he thinks he can do the operation much more quickly and has no reason to regret its use.

DR. A. M. CARTLEDGE, of Louisville, believes it is an advance in pelvic surgery to remove the uterus in badly septic cases, whereas formerly only the tubes and ovaries were taken out.

DR. E. S. LEWIS, of New Orleans, remarked that his experience with total hysterectomy for fibroids was restricted to the cases he had reported. The operations that he had performed up to last year were cases in which a partial removal of the uterus was effected, leaving a portion of the cervix. He could not but think, however, notwithstanding that the majority of the gentlemen who had spoken upon the subject appeared to be advocates of the partial operation of leaving a part of the cervix, that total removal of the uterus was the best operation.

DR. KELLY said, in reply to Dr. Davis, that when he spoke of removing the uterus in seven minutes or less, it did not include closure of the wound, dressing, etc. He had never been so dishonest as to make the statement that the entire operation could be done in such a short space of time, nor would he like that impression made.

DR. JOHNSON remarked, in reference to taking out the cervix, that it prolongs the operation and necessitates greater mutilation and more stitching, and seems to be unnecessary in view of the successful cases that had been and are being reported. Patients get perfectly well without doing it. He concurred in Dr. Davis' statement that the time consumed in taking out the uterus did not amount to much, but that we should consider the matter from the time the first incision is made

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until the last stitch is inserted, the wound dressed, and the patient off the table.

DR. JOSEPH PRICE, of Philadelphia, contributed a paper entitled

ABDOMINAL HYSTERECTOMY.

Among other things he said that, had the same mortality attended the early oophorectomies that attended the first ventures in hysterectomy, there would have elapsed a longer period than forty or fifty years between the first successful oophorectomies and the date of the revival of the procedure. Both vaginal and supravaginal hysterectomy had been largely practised by those who had given pelvic surgery most attention. They are the men who have contributed the most to perfecting the procedure. Abdominal hysterectomy is the one procedure indicated in all cases of intrauterine malignancy, when the vaginal portion of the cervix is not involved; in all cases of uterine malignancy complicated with tubal and ovarian disease; and in cases of uterine fixation antedating the malignant development. Hysterectomy, vaginal or supravaginal, should be a simple, direct, and complete operation in every detail. When the operation is done with good surgical judgment and skill there will be comparative immunity from all risk of dangerous hemorrhage and avoidance of sepsis. The method of procedure that successful experience recommends as safe, the most satisfactory and complete in its results, consists in extirpation by lateral ligation, incision of the posterior vaginal fornix, circular incisions of the vagina to the bladder; and approximating the vaginal walls to and matching the peritoneum complete the simple procedure. Operations for malignancy by the upper method of dealing with omental and other adhesions lessen the risk of post-operative troubles and early recurrence. In all operations for malignancy Dr. Price advises the removal of both the ovaries and tubes, and says that an operation would be imperfect without this. The leaving of the ovaries sometimes results in the growth of small tumors, necessitating an additional operation. The toilet should be perfect. If the operation has been complicated by pus-accumulations in tubes and ovaries, with universal adhesions, irrigation followed by glass drainage will give the best results. Drainage should be used in all cases in which the adhesions are extensive, as oozing of blood and serum may be very free.

Morcellation, with a mortality of one in seven, cannot certainly be said to offer any very strong claim to consideration. Such a mortality does not compare favorably with the much-abused extraperitoneal operation with the Kœberle or elastic ligature. Dr. Price had no statistical reasons for complaining of any one of the four methods—intraperitoneal amputation, extirpation, supravaginal, extraperitoneal, or vaginal extirpation—as his results in all had been altogether satisfactory from the standpoint of recoveries.

DR. A. M. CARTLEDGE, of Louisville, Ky., read a paper on

HYSTERECTOMY IN ACUTE PUERPERAL SEPSIS, WITH A REPORT OF CASES.

He reported two very instructive cases, after which he summarized his conclusions with reference to acute puerperal sepsis, as follows:

1. From our present knowledge of the causation and nature of puerperal infection we may say that it is largely a preventable condition.

2. When occurring it is of the greatest importance to differentiate between puerperal intoxication or invasion of a piece of prutrescent placenta or blood-clot by saprophytic germs and true septic infection or invasion of living cells by pathogenic bacteria. Puerperal sapremia, though in many cases producing the most alarming symptoms, is usually amenable to energetic treatment by curettage, antiseptic irrigation, and satisfactory tubular drainage of the uterine cavity.

3. True septic infection should be treated by sterilizing the birth-canal at the earliest possible time, free elimination by purgation, and a prompt evacuation of superficial abscess-accumulations about the cervix. Such a course may save the patient from more radical measures.

4. The chief differential points between puerperal intoxication and true puerperal infection are the comparative absence of pain, tympanites, and abdominal tenderness, and the more sudden onset and severe character of the symptoms in puerperal intoxication. Hysterectomy as a primary measure is never justifiable in septic intoxication, and when necessary it can only be after the mixed or secondary infection which may follow in the track of a primary sapremia.

5. Progressive involvement of the deeper structures, as evidenced by daily elevation of temperature, probably 103° F. in the evening and subnormal in the morning, together with night-sweats, scanty secretions, ascending pulse, are indications for hysterectomy.

6. It is often impossible from the involvement primarily of the low pelvic structures to make a bimanual examination that will reveal the true condition of the uterine appendages; but in view of the fact that these structures are not so prone to be invaded in the acute violent type of the disease vaginal hysterectomy should be the operation of selection.

SECOND DAY—NOVEMBER 13TH.

*Morning Session.*

DR. RICHARD DOUGLAS, of Nashville, read a paper entitled

SPLENECTOMY STATISTICALLY CONSIDERED, WITH THE REPORT OF A CASE.

Gathered from all sources, the author finds on record 194 splenectomies. Of these 126 were in females, 57 in males, and in 11 cases the sex is not given. Furthermore, he finds that in forty cases the operation was undertaken for wounds or injuries. Of this number 26 were in males and 14 in females. If we deduct these we find that the ratio of splenectomies for disease is 31 in males to 112 in females, showing the latter sex to be much more predisposed to disease of this organ.

Dr. Douglas then reported the following case: Mrs. J. S., aged 33, housewife, multipara, and a native of Tennessee, had a good family history. She has suffered occasionally with menorrhagia, but more recently from amenorrhea. She had malarial fever when 12 years of age. For the last three years she has lived in the western portion of the State on the banks of the Mississippi, and has suffered during this time from frequent

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attacks of malarial intermittent fever. About August 1st last she suffered from an acute pain in the left side. A tumor was then discovered in that region about the size of a fist. Physical examination revealed a smooth, elastic, movable tumor, filling the left lateral region of the abdomen, with its borders well defined and its edges sharp and notched. It frequently changed its form; at times it appeared flat and smooth; again it would rise up as a sharp ridge, extending from the ribs to the symphysis pubis. There was absolute percussion-dulness over the tumor. Vaginal examination revealed the uterus displaced forward and the pelvis filled with a smooth, hard mass, which upon change of posture disappeared from the pelvis and occupied the left iliac fossa. The woman suffered with paroxysmal pain, although not severe, with a sense of weight, a dragging in the left side, flatulency, nausea, and occasional vomiting. There was some emaciation and slight anemia. There was no edema, ascites, vertigo, or insomnia.

A diagnosis of malignant hypertrophy of the spleen was made, and after due preparation the abdomen was opened by an incision about six inches long at the outer border of the left rectus. The spleen was found displaced and free from adhesions. Its pedicle was secured by interlocking ligatures; and was severed close to the organ. As additional security against hemorrhage, ligatures *en masse* were employed; also individual deligation of the splenic artery. After removal of the spleen, bleeding from the abdominal incision became very profuse, and required several ligatures. The peritoneum was closed by separate silk sutures, and the abdominal wall was brought together with the usual interrupted silkworm-gut sutures.

The post-operative history of this case was a very stormy one, but one month after operation the woman was out of bed, and is now well.

DR. W. E. B. DAVIS, of Birmingham, contributed a paper entitled

SURGERY OF THE BILIARY DUCTS.

He reviewed the operative procedures practised on the biliary passages, and recommended for cases of obstruction from stone in the common and hepatic ducts that the obstruction should be removed, and that no attempt should be made to suture the incision in the duct or ducts. His experiments had demonstrated that the field of operation will be walled off, and that no general inflammation will occur after this treatment. He had tested the value of gauze in draining bile in injuries of the gall-bladder and biliary ducts, and reported cases in which he had removed the gall-bladder without tying the duct by packing with iodoform-gauze. The animals got well. In other instances in which he incised the gall-bladder and biliary ducts, and packed with gauze around the openings, no stitches being used, the animals recovered. Complete walling off of the general cavity was noted when the abdomen of the animals was re-opened. The experiments of Dr. Davis demonstrate conclusively that the peritoneum is capable of taking care of a small amount of bile, but that large quantities or the constant extravasation of it will produce a fatal peritonitis, usually in from twenty-four to forty-eight hours.

DR. JOHN D. S. DAVIS, of Birmingham, Ala., read a paper on the

MANAGEMENT OF CASES WHICH HAVE RECOVERED FROM APPENDICEAL ABSCESS IN WHICH THE APPENDIX WAS NOT REMOVED.

He said that the practice of dealing with appendiceal abscess by simply evacuating the pus and draining the cavity thoroughly without any extensive search or the breaking up of adhesions in order to find the appendix has been adopted by a large number of leading operators for some time. More recently some surgeons have advocated that the operation should be made complete in all cases; that all adhesions should be freed and the appendix removed. One leading abdominal surgeon, who has perhaps done more work in pelvic surgery than any other man in this country, has advocated this plan of treatment in vigorous terms. In a large proportion of cases of pus in the tubes and ovaries gonorrhea has been an important factor in its production. Such pus is not septic, and is not calculated to give rise to so dangerous a general inflammation as an infection from an appendicitis or an appendiceal abscess. It is a notable fact that a ruptured tube or ovary will usually be followed by a circumscribed inflammation. It is the exception that a fatal general peritonitis results from such an accident. The most fatal forms of peritonitis are due to rupture of an appendiceal abscess. In fact, but few cases are saved when such an abscess ruptures into the general cavity.

An operation on an appendiceal abscess is usually one of the simplest of procedures, and is attended with almost no danger. When the inflammation is circumscribed and the drainage is thorough, nearly all cases recover. The records of operations for appendiceal abscess show that the great majority of cases are cured after evacuation and complete drainage. Recurrence of the disease in such cases is rare. The appendix, having ruptured in a large proportion of cases before the formation of an abscess, is completely drained through the abscess, with permanent cure. In others the appendix is destroyed by the inflammation, and there is nothing left of it when the abscess is operated upon. To make an extensive search for the appendix is liable to break up adhesions, and then allow escape of septic fluid into the general cavity. Thus a very simple condition may be converted into one of the most serious that could happen in the peritoneal cavity. Dr. Davis believes that there cannot be much need of breaking up adhesions, for they give way in a short time after the abscess is relieved. In breaking up these adhesions, in addition to the danger mentioned, the surgeon prepares a favorable condition for fresh adhesions, with the possibility of the bowel being fastened in a position that will produce pain and often obstruction. After the abscess is thoroughly cleaned out, gauze packed into the abscess-cavity and between the abscess and abdominal wall will completely shut it off, and the chances for recovery will be good in such cases. Dr. Davis does not favor the breaking up of adhesions and searching for the appendix in cases of appendiceal abscess.

(To be continued.)

***Prof. V. v. Hacker***, of Vienna, has been called to the chair of Surgery in the University of Innsbruck.

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# NEWS ITEMS.

***Methods of Medical Teaching*** is to be the subject of a day's session of the American Academy of Medicine at its next annnal meeting, in Atlanta in May, 1896. Ten minutes each are to be allotted chosen speakers treating of the following subjects, and the whole question is then to be open to general discussion by members in five-minute speeches:

1. The Preparatory Mental Discipline of the Medical Student.
2. The Subjects to be Known Before Beginning the Study of Medicine.
3. The Lecture and its Uses.
4. Text-book Recitation and its Advantages.
5. Laboratory Methods.
6. Manual Training.
7. Clinical Instruction.
8. The Seminarian Method.
9. "Electives."
10. Quizzes, Reviews, etc.
11. Pass-examinations.
12. The Final Examination.
13. Students' Medical Societies.
14. State Examinations.
15. The Best Methods of Teaching Anatomy.
16. " " " Physiology.
17. " " " Inner Medicine.
18. " " " Surgery.
19. " " " Obstetrics.
20. " " " State Medicine.

***The St. Louis Academy of Medical and Surgical Sciences*** was organized on November 6, 1895. The constitution of the society subscribes to the code of ethics of the American Medical Association. The membership is limited to fifty.

No one can become a member of the Academy unless he possesses a good literary and medical education. As evidence of his literary qualifications and ability as a scientific worker he must deposit with his application a thesis, a pathologic specimen with descriptive text, a drawing of a normal or abnormal specimen with text, or some other evidence of his worth. The evidence will be passed upon by the committee on credentials. If the evidence is accepted the ballot is taken. Two negative votes will defeat a candidate.

The following officers were elected for the ensuing year: *President*, George W. Cale, Jr., M.D., F.R.M.S., London; *Senior Vice-President*, James Moores Ball, M.D.; *Junior Vice-President*, Arthur E. Mink, M.D.; *Secretary*, Emory Lanphear, M.D., Ph.D.; *Treasurer*, Wellington Adams, A.M., M.D.; *Orator*, Thomas O. Summers, A.M., B.S., M.R.C.S. Eng., M.D.; *Curator*, George Howard Thompson, A.M., M.D.

***The Journal of Experimental Medicine*** is the name of a new periodical to be published from January, 1896, and to be devoted to original investigations in physiology, pathology, bacteriology, pharmacology, physiologic chemistry, hygiene, and practical medicine. Dr. Wm. H. Welch, Professor of Pathology in the Johns Hopkins University, is to be the editor of the new journal, and with him will cooperate a board of twelve associate editors, as follows: For physiology: Drs. H. P. Bowditch, R. H. Chittenden, W. H. Howell; for pathology: Drs. J. G. Adami, W. I. Councilman, I. M. Prudden; for pharmacy: Drs. J. J. Abel, A. R. Cushny, H. C. Wood; for medicine: Drs. R. H. Fitz, W. Osler, W. Pepper. In addition, a large number of the ablest of American investigators have consented to assist as collaborators. The new *Journal* will for the present appear quarterly, and the annual volume will contain from 600 to 700 pages. Messrs. D. Appleton & Co., of New York City, will be the publishers.

***Dr. J. Edward Michael***, a well-known surgeon and gynecologist, of Baltimore, Dean of the University of Maryland, and President of the Medical and Chirurgical Faculty of Maryland, died December 6, of nephritis, at the age of 47 years.

***Prof. Loeffler***, the discover of the diphtheria-bacillus, has been decorated by the French Government with the Cross of the Legion of Honor.

***Dr. Weller van Hook*** has been elected Professor of Surgery in the Polyclinic Medical School and Hospital of Chicago.

***Dr. J. H. Wintrode***, an esteemed physician of Marklesburg, Pa., died on November 17th at the age of 73 years.

## BOOKS AND PAMPHLETS RECEIVED.

The Thermogenic Center in the Tuber Cinereum. By Isaac Ott, M.D. Reprint Med. Bulletin.

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# THE MEDICAL NEWS.

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## ORIGINAL ARTICLES.

### SOME SALIENT POINTS IN THE DIAGNOSIS, PATHOLOGY, AND TREATMENT OF APPENDICITIS.[1]

BY JOHN B. DEAVER, M.D.,
OF PHILADELPHIA.

APPENDICITIS, owing to its unusual frequency and alarming gravity, has become the most important intraabdominal inflammation encountered by the surgeon at the present time. Occupying this position, the subject is one worthy of the gravest consideration and sufficiently warrants the presentation of a few facts which I have learned in the careful study and treatment of a large number of cases. As many of these points have not been brought to the attention of the medical profession, I desire to emphasize them as much as possible and give to them the prominence which I feel they deserve. I refer most particularly to the early recognition of the varied symptoms of appendicitis, to a proper appreciation of the possible disastrous results of such a morbid process, and to the prompt application to all such cases of the most advanced surgery. I believe the time has arrived when those of us who have had the opportunity of observing and operating upon a number of cases of appendicitis should declare ourselves without fear and without reservation concerning the operative treatment.

A glance backward over a period of 18 months shows that there has been a decided wave of progress in the diagnosis and treatment of appendicitis; and that there has been developed a keener appreciation of its dangers and a more uniform acceptance of operative treatment than before. Many have been brought to justly realize, only through the school of bitter experience, the gravity that a comparatively insignificant pain in the abdomen may suddenly assume.

A tempest of argument has been raised, a storm of protests has been hurled against what has been called too radical surgery, and, as a result, the sea of life is strewn with human wrecks, absolutely lost or crippled beyond repair.

It would be only charitable for us to believe that those who to-day, either by voice or action, place themselves in the ranks of conservatives on this question, have not encountered the experiences of many others in the treatment of this disease. Their apathy is the result of an inexperience which underestimates its destructive tendencies. Unseen and frequently unheralded save by a few premonitory symptoms, like ripples on the surface of calm water, the deadly process begins, but as those ripples broaden, so do the symptoms intensify until the whole body becomes agitated by the fury of the storm, and the question becomes one of life or death. I venture to say that among those present to-night there are some who can recall sad experiences with this foolishly styled "fashionable disease," appendicitis, in which the patient, who was supposed to be the subject of an acute attack of indigestion, in a few hours showed unmistakable evidence of a purulent peritonitis which resulted in death, or perhaps the peritonitis was confined to the right iliac fossa and terminated in an intraabdominal abscess, which when opened, the appendix not being removed, left the patient a chronic invalid from fecal fistula or subject to subsequent attacks, each one of which was attended with the awful uncertainty of death.

There are many cases in which inflammation of the appendix is so intense that necrosis sets in, and either perforation occurs or gangrene supervenes before there is even an attempt upon the part of nature to protect the peritoneum against infection. This is so common an occurrence that I am compelled to bring you face to face with the question, *Can you, or I, or anyone, presume to say when or where this condition will arise?*

In previous papers upon this subject I have laid stress upon the wisdom of early operation in acute attacks. A richer experience and a careful analysis of the knowledge acquired impel me to state again, in terms so strong that they cannot be misunderstood, that early operation is not only the safest, but the only sure road to recovery. Every case of appendicitis places one in the position of deciding immediately what is best to be done. The patient's life and future usefulness frequently hang upon the slender thread of your judgment. You may say that many cases get well without operation (that is, do not die from the attack), but should you rest content with a fair percentage of recoveries, when a much greater number would recover by operation?

I have been accused of being too radical upon the subject of appendicitis, of having removed normal

[1] Read at the meeting of the College of Physicians of Philadelphia, December 4, 1895.

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appendices, but I have the courage of my convictions, and say to you that my statements are founded upon facts, and that if I can convince one of you, who may be skeptical, that what I say is true, then have my time and labor been well spent. In support of what I say I can produce the statistics of 200 operations performed between attacks, with two deaths, both of which deaths occurred in the first series of 100 cases.

DIAGNOSIS. I wish to emphasize a fact I have already stated in former articles, that is, that the diagnosis of appendicitis is an easy one to make. There are three cardinal symptoms which when present warrant without exception a diagnosis: the sudden onset of acute abdominal pain with or without vomiting occurring in one who was previously well; rigidity of the right side of the lower abdominal wall; tenderness over the site of the appendix.

It is not my intention to go over the entire subject of the diagnosis, the pathology, and the treatment of appendicitis, but to discuss some salient points not touched upon in the paper I read before the College, May 2, 1894, and which I hope will throw sufficient additional light upon this subject to clear the horizon for those who are still groping in the fog of uncertainty and doubt.

The affections with which I have seen appendicitis most commonly confounded are typhoid fever, pyosalpinx, ovarian abscess, pyonephrosis, abscess of the kidney, and perinephric abscess. I cannot understand why appendicitis should be mistaken for typhoid fever, particularly in the early stage of either affection, and yet upon more than one occasion I have seen the surgeon forced to defer an operation because the consensus of opinion of the majority of the medical attendants was opposed to such a procedure. In the early stages of the two affections the characteristic symptoms are distinct. The sudden onset, the rigidity of the right lower abdominal wall, and the tenderness which is more marked and smaller in area, being limited to the position of the appendix, are pathognomonic of appendicitis. In typhoid fever the slow onset attended by lassitude, headache, nose-bleed, etc., the temperature-record, the general abdominal tenderness with the accompanying peculiar doughy condition of the abdominal walls, the enlarged spleen, and the absence of rigidity, should be sufficient to establish a differential diagnosis with absolute certainty. If, in connection with these differential points, a digital examination of the rectum demonstrate a sensitive mass, then any doubt which may exist in the mind should be at once dispelled. Spots may be found in either affection, but they are not of any diagnostic value, as I believe that in both cases they are of septic origin.

Follicular abscesses of the appendix are responsible for some of the mistakes in the differential diagnosis between appendicitis and typhoid. The minuteness of the collections accounts for the mildness and the prolongation of the sepsis and the lessened degree of the local symptoms. In this type of appendicitis we have a constant source of absorption with a small amount of tissue involved. It is not uncommon to find cases which have been supposed to be typhoid fever, in which an operation has demonstrated the presence of macroscopic follicular abscesses in the appendix, varying in size from a millet-seed to a mustard-seed, an eroded, mucous membrane, and a more or less infiltrated organ.

The difficulties in making a differential diagnosis between appendicitis and typhoid fever in the later stage are more fancied than real. The early history, the local symptoms, on the one hand; and the general abdominal symptoms, with the dry tongue; the sordes on lips and teeth, the temperature-record, and the characteristic diarrheal stools, on the other hand, are quite sufficient to make the differentiation clear and distinct. The spleen is enlarged in both affections; in both instances as a result of sepsis. The enlargement, however, due to septic infection from an active suppurative process like appendicitis is likely to be associated with pain caused by a perisplenitis from embolism.

The following case is related to illustrate the fact that follicular abscesses in the appendix are capable of causing a train of symptoms which suggest to the medical man the probability of typhoid fever:

One morning in the early fall, my friend, Dr. M., called at my office, saying that he was worried about his little girl, who was ill, because the nature of the illness was not clear to him. He came to the city with the purpose of having one of our medical men see the child. He related to me the history of the case and showed me the temperature-record, and I suggested that the symptoms resembled those of subacute appendicitis. An appointment was made with the medical man, and I was asked to accompany him. This being impossible, I suggested one of my assistants and Dr. F., of the German Hospital, who were accepted. The consultation was held, but a definite conclusion was not reached, as the medical consultant believed the trouble to be typhoid, while Dr. F. and my assistant thought it appendicitis. The following day I was asked to see the child and to operate if I concurred in the diagnosis of appendicitis. This I unhesitatingly did, and operated at once. The following conditions were present: The appendix was situated behind the colon, to which it was adherent; the mucous lining of the tip of the appendix, which was club-shaped, contained several follicular abscesses, the largest of which was the size of a split pea. The recovery was uninterrupted and rapid; the symptoms which had suggested typhoid disappeared immediately after the removal of the appendix.

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Before directing attention to the points of differentiation between appendicitis and the affections attended with pus-formation which may be confounded with appendicitis, permit me to say that the occasion for making a differential diagnosis between appendicitis with pus-formation and other forms of pus-collections should never arise, as in all cases of appendicitis the appendix should be removed before pus has formed.

The presence in the rectouterine cul-de-sac of an inflammatory mass in intimate relation with the uterus, which renders it partially or completely immovable, and which can be clearly outlined by vaginal or combined vaginal and rectal examination, in connection with the history of a vaginouterine infection, establishes the diagnosis of a pyosalpinx or an ovarian abscess. The essential thing in the differentiation between these two affections and appendicitis is the absence of a history of the three cardinal symptoms of the latter affection. This is also the essential point in the differential diagnosis between appendicitis and pus-affections of the kidney.

Too much stress cannot be laid upon the importance of urinary examinations, not only in the supposed kidney-affections before mentioned, but also in appendicitis. I have recently operated upon a case in which the urine contained pus and epithelium from the pelvis of the ureter, in which there was present a swelling in the right loin, accompanied by tenderness, extending in the direction of the attachment of the appendix, and in which a history of the three cardinal symptoms was elicited. I opened the right iliac fossa, finding the appendix, which was postcolic and contained pus, pointing north, adherent to and in communication with the pelvis of the ureter, through which the contents of the appendix were being emptied into the bladder, thus explaining the urinary symptoms. The recovery was uneventful.

In certain cases of appendicitis the pain is entirely referred to the left side. I wish to emphasize this point, as I have seen a number of cases in which the attending physicians who were familiar with appendiceal symptoms were totally misled. From my experience in operating upon a number of such cases, in which I invariably found the appendix holding a southerly position, I am prepared to make the statement that when the pain is referred to the left side, the appendix occupies the pelvis; also, that in this class of cases, when suppuration has taken place, resulting in a large pelvic collection, there is pronounced bilateral rigidity of the lower abdominal walls. Therefore when I am asked to see a patient, and the diagnosis of the ailment is not clear—with a previous history of the three cardinal symptoms, with the pain referred to the left instead of the right side, with a temperature denoting a hectic condition, and bilateral rigidity of the lower abdominal walls—I am convinced that the case is one of suppurative appendicitis, in which both the pus-collection and the appendix occupy the pelvis. A rectal and vaginal examination under these conditions, with the exception of great pain, elicits nothing but a sense of fulness. The contrast between this condition and that of suppuration in the pelvis dependent upon uterine infection, to which reference has been made, is marked. The following case will illustrate the importance of these diagnostic points:

During the past summer I was asked to see Miss ——, the history of whose illness was as follows: About two weeks prior to my visit she was suddenly attacked with what was at first supposed to be an attack of acute indigestion, which did not yield to the ordinary remedies. A provisional diagnosis of typhoid fever had been made, in view of the fact that the spleen was enlarged, spots were present, and the temperature was suggestive of an irregular case of typhoid. The suddenness of the onset, accompanied by acute abdominal pain with very decided bilateral rigidity of the lower abdominal walls, the temperature-record, the vaginal and and rectal examinations which elicited great pain with the characteristic fulness only, pronounced the case one of suppurative appendicitis with a pelvis full of pus. I advised operation without delay. Adverse opinion of other counsel delayed the operation for a period of two days, at which time the pelvis was found to be full of stinking pus; the appendix, which was perforated and gangrenous, occupied the pelvis. The appendix was removed and the recovery was uneventful.

The citation of one case occurring in the person of the son of a physician, a most excellent diagnostician, will serve to illustrate the importance of the pain being referred to the left side, as indicating the position held by the appendix, viz., the pelvis; the cardinal symptoms were present:

Master A., son of Dr. E., was suddenly seized with acute abdominal pain, vomiting, and rigidity of the right lower abdominal wall, which followed the ingestion of numerous articles of indigestible food. After a period of three days, symptoms of acute peritonitis developed, at which time his father consulted me. He remarked that he would have regarded the case as one of appendicitis if the pain had not been referred to the left side. I told the father that, with all deference to him, I regarded the case as one of appendicitis demanding immediate operation. Two days later I was hastily summoned to see the son, whom I found suffering from a diffused peritonitis of an active type, with a pulse of 130, leaky skin, constant retching and obstipation. I declined to interfere, advised the discontinuance absolutely of opium or any of its preparations, and ordered small and repeated doses

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of calomel to be given to the extent of free purgation, believing this a wiser course to pursue than operation. The boy apparently recovered from this attack. I then advised operation in order to prevent a recurrence of the trouble, but the father could not agree to have his son operated upon when he was apparently well. Within ten days a second attack occurred; I was again summoned, but being absent from the city other counsel was sought; the operation was again deferred, and the result was an incomplete recovery from the second attack. I was again consulted and again advised operation. The boy was brought to Philadelphia. The operation showed that the appendix, the tip of which contained a pus-collection, with an encysted abscess surrounding this, occupied the pelvis, being adherent to the floor of the pelvis and to the right of the rectum. The appendix was removed and the recovery was uneventful.

In those cases in which the pain is referred to the left side and the point of greatest tenderness is immediately above the pubis or in the left iliac fossa, the greatest intensity of the inflammation will be confined to the tip of the appendix. It is in this class of cases in which the appendix occupies the pelvis that bladder-symptoms, such as irritability, frequent micturition, and retention, are of value from a diagnostic point of view. The abrupt cessation of pain previously located in the region of the appendix, followed by fall of temperature, increased pulse-rate, and an anxious expression, indicates the occurrence of gangrene in that organ.

PATHOLOGY. The primary pathologic condition in an attack of appendicitis is catarrhal inflammation. The outcome of the attack after the catarrhal condition is established depends upon several important factors: 1st. Drainage of the organ; 2d. The character of the microorganisms present; and 3d. The presence or absence of fecal concretions or foreign bodies.

In a large percentage of cases the appendix holds a northerly position running up behind the cecum. This position favors, by gravity, the drainage of the organ. It also opposes the entrance of foreign matter and in such cases the primary attack is more likely to subside. The conditions are changed, however, in an appendix which has been the seat of an inflammation. In the process of healing of the mucous membrane lining the organ, strictures and twisting of the appendix due to contraction occur, which interfere with drainage and often entirely close its lumen. A condition I have met with is one of constriction with an enlargement on either side of the stricture, causing the appendix to assume an hour-glass shape. When the organ occupies any of the other positions than northerly, drainage is interfered with by gravity. An appendix which cannot drain itself and which becomes inflated is a menace to the life of its possessor.

The character of an attack varies with the association of the bacterium coli commune with the staphylococcus or with the streptococcus, the latter combination being by far the most unfavorable. When the bowel is red and excoriated the streptococcus is present, and the prognosis of the case unfavorable. I believe that the presence of a fecal concretion in appendicitis is a mere coincidence, and acts as a pathologic factor only by interference with drainage, thereby making perforation more likley, and also by constricting the entire lumen, and causing pressure and interference with the circulation, favoring gangrene of the organ to the distal side of the concretion.

Obstruction of the bowel is not uncommonly met in the various stages of appendicitis. Ordinarily this is due to bands, the result of the inflammation, or to the adhesion of the tip of the appendix to the adjacent bowel. I have recently met with a case in which the patient had been operated upon for the relief of a circumscribed abscess. The patient for ten days progressed favorably, and was considered to be beyond the danger-point. Suddenly symptoms of intestinal obstruction manifested themselves. The wound was reopened, and the obstruction found to be due to pressure upon the bowel, caused by the contraction of the abscess-cavity in the processes of healing.

Follicular abscesses of the appendix are frequently met. They are minute, often not larger than a millet-seed.

The postperitoneal lymphatics are sometimes affected secondarily, causing large retroperitoneal collections of pus. I have met with the pus of an appendicitis situated between the liver and the diaphragm, where it had burrowed behind the diaphragm and communicated with a bronchus, causing a purulent expectoration with an odor which indicated that gangrene of the lung was the cause of the patient's trouble.

I do not believe that leukocytosis is sound evidence of pus. I believe that ordinary means are sufficient to enable one to make the diagnosis, and that the time spent in demonstrating the leukocytes which prove nothing could be better utilized in liberating the collection.

TREATMENT. My paper has no doubt impressed you with the fact that in my opinion operation is the only treatment for appendicitis. The best results and the smallest mortality are obtained when the operation is performed at the earliest possible opportunity. The diagnosis can and should be made in a few minutes, and the operation should follow without the delay of days or even hours. If through doubt and delays immediate operation be impossible, then the quiescent period, that between attacks, is the next most favorable time. Operation at this period has been performed by me with a mortality of 1 per cent. in a series of two-

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hundred cases, both deaths occurring in the first hundred. The added risks of operation for appendicitis when pus has already formed cannot be denied by any one who is familiar with the dangers which accompany such a condition of affairs. In fact, no surgeon or physician will deny that pus complicates and materially increases the danger of any operation, and particularly when that greatest of all absorbing surfaces, the peritoneum, is involved. Picture to yourselves the operation for the removal of an appendix before pus has formed—the clean abdominal incision; the removal of the diseased organ, with the closing in by serous flaps and the invagination of the entire stump into the cecum, with the subsequent closure of the abdominal wound, on the one hand; and, on the other, an abscess with its foul-smelling and infectious contents bathing the incision and contiguous parts; the unquestionably increased risk of infecting a peritoneum which nature has closed off by the removal of an appendix which has perforated and which is probably involved in the confining wall of the lymph; the necessity of drainage by gauze and tubes, with the increased likelihood of subsequent hernia, fecal fistula, etc. Can anyone who is familiar with these two conditions pretend to say that the former is not less dangerous and more desirable than the latter, or that the two conditions of operation do not bear the testimony of unbiased observers? There is, of course, a small percentage of recoveries following operations for abscess-cases in which the peritoneum has been generally infected; but this depends upon the amount and character of the pus and upon the operation being done before collapse has set in. I cannot say that I think it wise to operate upon a patient in collapse.

In operating upon pus-cases in which the appendix is involved in the wall of the abscess-cavity, I believe that it is possible and always advisable to make the operation a complete one, as in no other way is recovery assured. To leave an appendix which has sloughed off, or has a perforation in it, or which has been intensely inflamed by migration of microorganisms through its walls, with the certainty of fecal fistula or subsequent attacks, I believe to be bad surgery. It is my practice to remove the appendix in all cases. Certain it is that by the proper disposition of gauze and careful attention to technic, an appendix which is deeply imbedded in a wall of lymph, whether it makes a portion of the abscess-cavity or not, can be removed, and the dangers which attend its removal are far less than those which occur when it is allowed to remain. A practice which I believe is a frequent one is simply to evacuate the collection, there being no attempt made to remove the appendix if it be not plainly visible. This I consider, with all due deference to the surgeons who practice it, incomplete surgery. Cases of congenital absence of the appendix are reported, but the congenital absence probably exists only in the mind of the searcher. I have never failed to find the appendix in chronic cases, although many times I have been able to find it only after a prolonged search and a careful dissection.

I beg the privilege of a few more minutes to relate the report of a case upon which I operated November 23, 1895, and which will serve, I hope, the purpose intended, namely, to disabuse the minds of those among you who are still of the belief that a patient who has apparently recovered from an acute attack has safely passed the danger-point, and that operation is superfluous:

A boy of 13 was referred to me by my friend, Dr. P. Moylan, with a history of three attacks of appendicitis. During the last attack he was under the care of Dr. Moylan, who said to me that at the time of his first visit a general peritonitis was present, and was attended with so much distention that he was unable to make out by examination the cause of the peritonitis. There was apparent recovery from this attack. Operation was by incision through the right semilunar line, opening up a cheesy mass situated beneath the transversalis muscle. The peritoneum beneath the collection had been destroyed and the posterior wall was formed by the great omentum. The cheesy material was curetted away and the cavity antisepticized. The great omentum was tied off around the involved portion and the latter cut away. The cecum contained two perforations which were brought to view after the removal of the diseased and adherent omentum. The appendix lay postcecal, imbedded in a mass of lymph. It was perforated at its base. The pelvis contained a collection of pus which was confined by adherent coils of small bowel. The patient recovered.

In conclusion, I desire to say that an appendix that has been at any time the seat of inflammation will be a constant source of danger to the life of its possessor; that there is no medical treatment for the cure of appendicitis; and that, as Osler has so happily said, "the surgeon is frequently called too late—never too early."

1634 WALNUT STREET.

***The Gonococcus as a Pyogenic Microorganism.***—BUJWID (*Centralbl. für Bakteriol. und Parasitenk.*, B. xviii, No. 14, 15, p. 435) has reported the case of a man, 32 years old, with gonorrheal urethritis demonstrated bacteriologically, in which a severe chill occurred two days after a catheterization. Later, four intramuscular abscesses developed—in the neighborhood of the left shoulder-joint, in the right popliteal space, on the inner aspect of the left leg, and above the right external malleolus. The pus evacuated from these in small amount was odorless and reddish-brown in color, and upon culture on serum-agar proved to contain gonococci in pure growth.

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# LABORATORY STUDIES.

## THE RELATION BETWEEN THE SPECIFIC GRAVITY OF THE BLOOD AND ITS HEMOGLOBIN-PERCENTAGE.

BY F. C. BUSCH, B.S., AND A. T. KERR, JR., B.S.,
UNDER THE DIRECTION OF

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THE investigation of the specific gravity of the blood has received more or less attention for a number of years. Among the first to study it were Nasse (1839), Davy (1839), Becquerel and Rodier (1844), Haro (1873), and Bizzozero (1879). Other investigators who have made valuable contributions to the literature are Schmidt, Senac, Boyle, Fano, Roy, and Arronet. In recent years most valuable researches have been made by E. Lloyd Jones, Schmaltz, Peiper, Siegel, Sciolla, Castellano, Copeman, Lyonnet, Hammerschlag, Hoch and Schlesinger, Sherington and Copeland.[1]

In 1890, Hammerschlag, after comparing the specific gravity with the hemoglobin-percentage in a large number of cases, constructed a table giving the percentages of hemoglobin for different specific gravities. In the winter of 1894–95 we began a series of observations to test the value of this table in the ordinary run of cases without limiting it to primary anemia. Hammerschlag neglects to state what method he used for the determination of the hemoglobin, but Hoch and Schlesinger give his table as based upon the Fleischl instrument. We have used for this purpose the methods of Fleischl and of Gowers, because they are in more general use than any others, take but little time, and are easy to manipulate. Henocque's spectroscopic method was not used because of the large amount of blood it requires, which would be especially an objection when used in connection with the other methods.

We made no count of the blood-corpuscles in comparison, but it has been found by Jones, Hammerschlag, Schmaltz, and others that the specific gravity corresponds more closely with the hemoglobin than with the number of red blood-corpuscles.

For determining the specific gravity of the blood a variety of methods have been used. One of the early ones was that of Haro (1873), who noticed that denser blood passed more rapidly through a tube of narrow caliber than did blood of lesser density. He noted the time it took bloods of different known densities to pass through a tube of certain caliber. He was thus able to estimate the density of an unknown specimen by noting the time it took to pass through the tube.

A good method of determining the specific gravity, but one which takes considerable time, is that with the pycnometer. This, as used by Schmaltz, is a capillary tube of 0.1 c.cm. capacity, which is first weighed empty, then when filled with water, and finally when filled with blood. The weight of the tube is subtracted and the specific gravity calculated from the weight of the blood as compared with that of the water.

Fano, in 1882, used a method which depends upon the principle that a body when immersed in a fluid will float indifferently in that fluid when the specific gravities of the two are equal. The fluid used was a solution of gum in water. To make this heavier he added a denser gum-solution. To make it lighter he added water. Blood was introduced into this and the liquid made to correspond in specific gravity to that of the blood. The specific gravity of the liquid was then, determined and thus at the same time that of the blood.

Roy, in 1884, devised a method applying this same principle. He used solutions of salt or other suitable substances ranging in specific gravity from 1.035 to 1.075. For making the test he used a modified hypodermic syringe. This had a small steel tube prolonged inward from the tip so as to be seen through the glass sides of the barrel. The syringe was filled with a salt-solution and a drop of blood drawn into it. As it emerged from the steel tube into the solution he noted whether it rose or sank. If it sank, a new solution of higher specific gravity was chosen; if it rose, one of lower specific gravity was taken. Finally one was obtained in which the blood neither rose nor sank, or two were found in one of which it rose and in the other sank. In the latter case the specific gravity of the blood was between the two.

Roy's method as modified by Jones is as follows: The apparatus consists of from 20 to 25 one-ounce glass bottles filled with standard solution of glycerol and water, differing one from the other by 0.001 specific gravity and ranging from 1.027 to 1.075; a number of fine glass pipets drawn out to a point and bent at right angles near the tip; a cylindric glass jar of about one-dram capacity; and a number of clean suture-needles. By means of the pipet the blood is introduced into the one-dram jar filled with one of the standard solutions chosen by guess from the appearance of the patient. It is then blown out gently, being given an impetus in a horizontal direction owing to the bent tip of the pipet. If it rises or sinks other solutions are chosen, as in Roy's method.

Landois used solutions of sodium sulphate ranging between 1.050 and 1.070.

Siegel has adopted a device whereby the frequent standardization with the Jones-Roy method is diminished. He covers the surface of his standard solutions with a layer of olive-oil, introducing the blood through this by means of a glass tube which is closed by a rubber-cap.

Dastre employs a mixture of olive-oil and carbon chlorid ($CCl_4$), which, he says, neither mixes with nor coagulates the blood.

The method which we have used is that devised by Hammerschlag. The necessary apparatus consists of a hydrometer-jar, a hydrometer, a pipet of small caliber, a glass rod, some fine steel pens, a bottle of chloroform, one of benzol, and a mixture of the two. The mixture of chloroform and benzol is poured into the hydrometer-jar. The finger, after being washed with bichlorid and alcohol, is punctured. A good-sized drop of blood is introduced into the chloroform-benzol mixture. If the drop sinks, the mixture must be made heavier by adding chloroform. If it rises, the mixture is too heavy and must be made lighter by adding benzol.

It is desirable not to divide the drop of blood into several, but, on the other hand, care must be taken to get the chloroform and benzol thoroughly mixed by stirring

[1] For a good account of the history of this subject see Castellano.

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ith the glass rod. In order to obtain this end it is etter, when the liquid is too heavy, to add an excess of enzol, and then obtain the required density by adding hloroform slowly and carefully until the drop of blood oats indifferently in the mixture. When this occurs, he drop of blood is of the same specific gravity as the ixture, and by determining that of the mixture with a ydrometer we know the specific gravity of the blood.

We have found it most convenient to obtain the blood om the middle finger of the left hand, making our uncture to the side of the tip on the palmar surface. 'or this purpose we have used an ordinary steel pen, ith one nib broken off. The pen was sterilized by heat nd a new one used for every test. The blood was rawn up into a pipet of fine caliber, which was intro- uced into the middle of the chloroform-benzol mixture, nd nearly all of the blood gently blown out. *We were areful not to blow out all of the blood, but left a little in he tip of the pipet, shaking off the rest.* The object of his was to *avoid mixing air with the drop and thus btaining an incorrect result.*

The same chloroform-benzol mixture may be used epeatedly. After each test, in order to get rid of the rop of blood, it is filtered. The hydrometer-jar should e scrupulously clean. Otherwise some fine particles in may adhere to the drop of blood and thus cause an rror.

The hemoglobinometer of Gowers is usually manufac- ured with but one colored tube, which is for use with aylight only. There is another form in which there re two tubes, one for use with daylight and the other ith artificial light. The one we have employed is of he former kind. In making the comparison with it one ust hold the instrument against a white background, pposite the source of light, or, as recommended by andois, between the eye and the light.

In the use of Fleischl's hemometer artificial light is ecessary, and the test must be made in a room from hich daylight is excluded. When tests are to be made ith patients confined to bed, it is very inconvenient and uses loss of time to be obliged to run to a dark room some other part of the ward or building every time a st is to be made. We have been able to obviate this fficulty by a simple device, enabling us to carry our ark room with us. A piece of ordinary cardboard is t so as to fit over the top of the canvas travelling- g in which we carry our instruments. The hemome- r is placed in one end of the case and a small lamp in e other. A hole is cut in the cardboard to give pas- ge to the lamp-chimney. Another small hole is cut so to be directly over the well of the instrument. At the le of this hole a window, closed by a cardboard flap, cut for the introduction of the hand in order to move e wedge of the instrument.[1]

Siegel showed that the glycerol-water and the chloro- rm-benzol methods gave practically the same results, nd Hammerschlag found that the chloroform-benzol ethods and the pycnometer differed very slightly. herefore, it appears that the results obtained by the e of these three methods are essentially the same.

[1] The capillary pipets for each Fleischl instrument are gradu- ed for that particular instrument. The capacity of these is dicated on the screw that binds the table of the instrument- nd to the supporting leg, as well as on the handle of the pet itself.



The pycnometer requires a very accurate balance, such as is used for the finest chemic work. Such a balance cannot readily be moved from place to place. The glycerol-water method, though said to take less time than the chloroform-benzol method, requires the keeping on hand of twenty or thirty solutions which must be frequently standardized. The chloroform-benzol method requires little apparatus, is easily procured, inexpensive, always at hand, and needs no standardization.

It was found by Roy and Jones that the influence of room-temperature made no difference in their results. Hammerschlag also determined by experiment that room-temperature did not influence tests made with his apparatus. Therefore, we have in no case corrected for differences in room-temperature.

The specific gravity in health has been differently given by different observers.

MALES.

| | |
|---|---|
| Bennet | 1.055–59 |
| Perrier | 1.056–59 |
| Frenn | 1.062 |
| Davy | 1.052–60 |
| Nasse | 1.055–59 |
| Becquerel and Rodier | 1.058–60 |
| Muschenbroeck | 1.056 |
| Denis | 1.059 |
| Schmidt | 1.060 |
| Loyd Jones | 1.058 |
| Schmaltz | 1 059 |
| Becker | 1.054–60 |
| Landois | 1.056–59 |

FEMALES.

| | |
|---|---|
| Perrier | 1.051–55 |
| Davy | 1.045–56 |
| Nasse | 1.051–55 |
| Becquerel and Rodier | 1.054–60 |
| Schmidt | 1.050 |
| Quincke | 1.058–60 |
| Jones | (about) 1.055 |
| Schmaltz | 1.056 |
| Becker | 1.057–56 |
| Landois | 1.057–55 |

Hammerschlag found that in healthy males (between the ages of twenty and forty years) the specific gravity varies from 1 057 to 1.0625, and in females from 1.0535 to 1.061.

Jones states that venous blood is denser than arterial blood. Sherrington and Copeland found almost no difference between arterial and venous blood. In passive congestion, as in a ligated finger, they agree that there is an immediate rise in specific gravity. This rise vanishes at once upon the disappearance of the congestion.

A characteristic property of the blood is to keep its specific gravity constant. Thus, after drinking large amounts of fluid, the change in the specific gravity of the blood disappears in from one-half to one hour. Sherrington and Copeland found that after injecting large quantities of salt-solution into the blood of rabbits the specific gravity of the blood returned to the normal in a very short time. It was discovered by Hoch and Schlesinger that a marked change in the specific gravity of the blood as a whole might take place without affecting that of the serum. Therefore, it appears that usually the principal factors in a change of specific gravity of the blood from the normal are in the cellular constituents.

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Of the solid constituents of blood in man, the hemoglobin constitutes about 60 per cent. (according to Hoppe-Seyler). In females it is somewhat less. This being the case, variations in the percentage of hemoglobin must immediately affect the specific gravity of the blood. Hammerschlag maintains that it is possible therefore to determine from the specific gravity, accurately enough for clinical purposes, the percentage of hemoglobin for a given sample of blood.

The table of Hammerschlag, which it has been our object to test, is as follows:

| Specific gravity. | Hemoglobin. |
|---|---|
| 1.033–1.035 | 25–30 per cent. |
| 1.035–1.038 | 30–35 " |
| 1.038–1.040 | 35–40 " |
| 1.040–1.045 | 40–45 " |
| 1.045–1.048 | 45–55 " |
| 1.048–1.050 | 55–65 " |
| 1.050–1.053 | 65–70 " |
| 1.053–1.055 | 70–75 " |
| 1.055–1.057 | 75–85 " |
| 1.057–1.060 | 85–95 " |

According to Hammerschlag, this table holds best for cases of anemia, including chlorosis, tuberculosis, and malignant tumors. But in interstitial nephritis the specific gravity is relatively lower than the hemoglobin. In circulatory disturbances, even when edema is present, the specific gravity is generally normal. In fever it is relatively lower than the hemoglobin, rising after the fall of the fever.

We have investigated the specific gravity of the blood in 150 cases, at the same time determining the amount of hemoglobin by the methods of Fleischl and Gowers. These cases embrace a wide range of diseases, and hemoglobin-percentages varying between 12 and 110. Out of the 100 consecutive cases taken for comparison of the three methods, the amount of hemoglobin estimated from the specific gravity and as determined by the Fleischl method differed by less than 5 per cent. in 24 cases; between 5 per cent. and 10 per cent. in 24 cases; between 10 per cent. and 20 per cent in 26 cases; and more than 20 per cent. in 26 cases. The specific-gravity method ran below the Fleischl in but 15 cases and in 5 of these less than 5 per cent. Therefore the differences observed usually showed the readings higher by the specific-gravity method than by the Fleischl instrument.

In the same cases the readings of Gowers' apparatus differed by less than 5 per cent. from Fleischl's in 36 cases; between 5 per cent. and 10 per cent. in 21 cases; between 10 per cent. and 20 per cent. in 33 cases; and by more than 20 per cent. in 10 cases. As a general rule they were higher than with Fleischl's, but not quite as high as those estimated from the specific gravity. Comparing the percentage obtained from the specific gravity with the Gowers' readings, in 33 cases there was less than 5 per cent. difference; in 31 cases the difference was between 5 per cent. and 10 per cent.; in 26 cases between 10 per cent. and 20 per cent.; and more than 20 per cent. in 10 cases.

From the foregoing comparison, it appears that in approximately one-half of our cases the hemoglobin as determined from the specific gravity corresponded quite well with the hemoglobin as determined by the Fleischl hemometer; that this correspondence was fair between the specific-gravity determinations and the Gowers determinations in more than one-half of our cases; that there was a somewhat closer correspondence between the determinations from the specific gravity and the Gowers than there was between the Gowers and the Fleischl instruments; that the Fleischl instrument gave relatively lower readings.

The differences in the readings of the three methods may be due: (1) to errors in the specific-gravity method; (2) to the inaccuracy of the table giving the hemoglobin-equivalent for the specific gravity; (3) to the errors of the Fleischl and Gowers instruments.

We are convinced that both Fleischl's and Gowers' instruments, particularly the latter, are liable to err to a considerable degree. Osler says that the error in the Fleischl instrument may not be more than 2 per cent. in blood which is nearly normal, but he cites Neubert and Letzius as having shown that in a much impoverished blood the error may be as high as 20 per cent. In using two Fleischl instruments in comparison in the same cases, we have generally found a difference in reading between the two. In 30 per cent. of these comparisons the difference was as much as 10 per cent. We have also found that in about one-fifth of our cases we disagree in our readings of the same instrument. Forty per cent. of these differences were more than 5 per cent.

We feel some hesitancy in stating that in consecutive tests, made with the same Fleischl instrument, in the same cases, within a few minutes, we have found differences in readings of as much as 10 per cent. This occurred to us after having used the instrument almost daily for nearly a year, and after having used it many hundred times. Such errors can only be explained by acknowledging inaccuracy in technic, but a method so easily liable to such serious errors could hardly be relied upon for more precise results in the hurry of ordinary clinical work.

In the same series of consecutive tests, the specific gravity and the hemoglobin-percentage as determined by it, varied to an insignificant degree. The hemoglobin-percentages as determined by the Gowers instrument, in some of the tests, varied as much as 10 per cent. In our experience with the Gowers instrument, we have found it very unsatisfactory. It is often quite impossible to get the tint of the diluted blood to correspond with that of the standard 1 per cent. solution. Even when this is attained, a difference in shade may be produced by looking at the instrument somewhat from the side instead of from straight in front, by holding the paper for reflection farther away from or nearer the instrument, by holding the instrument between the eye and the window, or by moving farther away from the window. In the last case, in a number of instances, the differences produced by moving 20 feet away from the window became as much as 15 per cent. higher. Therefore it would seem that on a cloudy day readings would be higher than on a bright day. The differences in readings between holding the instrument against a white background and holding it directly between the eye and the light were as much as 10 per cent.[1]

As may be seen from the foregoing comparisons and the observations of others the Fleischl instrument is not

[1] See Limbeck, pp. 18, 19, for analogous observations.

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entirely reliable; therefore Hammerschlag's table, which is based upon this instrument, must be inaccurate. Taking all these conditions into consideration, there appears to be quite a constant correspondence between the specific gravity and the percentage of hemoglobin, and we think that, with a table based upon a much larger number of cases and a more reliable estimation of the amount of hemoglobin, this method would be as accurate for clinical purposes as the methods now in vogue, and possibly more so.

If such a table existed, it would be extremely simple to construct a hydrometer with a long narrow stem having the scale of specific gravity on one side and the corresponding hemoglobin-percentage on the other. By using such an instrument the specific gravity and the hemoglobin could be determined at the same time with the greatest facility.

Incidentally in the course of our work we have had a number of cases of epilepsy. In 12 cases of that disease we found in all but one that the hemoglobin determined from the specific gravity was at least 10 per cent. higher than by the Fleischl hemometer. Jones says that the specific gravity is frequently above the normal in the post-epileptic state. In 13 cases of syphilis we found that as a rule the hemoglobin ran lower than in health. There was quite a constant correspondence between the estimation of the hemoglobin by the Fleischl instrument and with the specific gravity. Jones finds that the specific gravity in syphilis runs low.

In a case of splenic leukemia the specific gravity was 1.052, and the hemoglobin by Fleischl's hemometer 40 per cent., the hemoglobin by Gowers' 68 per cent., and hemoglobin calculated from the specific gravity was about 68 per cent.

In conclusion our results may be briefly summarized as follows:

1. The percentage of hemoglobin in blood in most cases may be predicted from the specific gravity with sufficient accuracy to be valuable for clinical purposes.

2. Fleischl's hemometer is liable to an error of 10 per cent.

3. Gowers' instrument is liable to an error even greater than that of Fleischl's.

4. The error in technic with the specific gravity method is likely to be very slight.

5. In following up a case with Fleischl's or Gowers' instrument very erroneous conclusions may be drawn. Mistakes may be made of 5 per cent. or 10 per cent., too low one day and 5 per cent. or 10 per cent. too high on another.

6. In following up a case the specific-gravity estimation seems to give very slight error, and even if from it the absolute percentage of hemoglobin could not be determined, yet the relative increase or decrease of hemoglobin from one day to another might be quite accurately estimated.

7. Because of its being based on the instrument of Fleischl, Hammerschlag's table is of necessity only approximately accurate.

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## "LIQUID PEPTONOIDS."

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"LIQUID peptonoids, beef, milk, and gluten perfectly digested. Contains the albuminoid principles of beef, milk, and wheat, entirely digested and ready for assimilation. It represents a valuable nutritive cordial, and

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will be taken by patients who are unable to digest food in any other form, and in these cases it has been found of the greatest service"—so says the label on the bottle, which, by the way, was left at my office by an agent of the manufacturer, and hence is presumably at least a fair sample of the trade-supply. The preparation is sweet, aromatic, alcoholic, and altogether quite agreeable.

As this preparation has been recommended not only by the manufacturers, but by physicians who have employed it in typhoid fever and other conditions demanding easily assimilable food, I have been interested to know just what it contained. A letter of inquiry addressed to the manufacturers not having been answered, I have subjected two sample bottles to the following tests:

Boiling, with and without nitric acid: no precipitate, and hence no albumin.

Heller's ring-test, with cold nitric acid: No. 1, no ring; No. 2, slight cloudiness; hence a trace, at most, of albumin or albumose.

Addition of ammonium sulphate: no precipitate (No. 1), hence no form of albumin except possibly peptone.

Ring-test with alkaline copper-solution: no rose tint, hence no peptone or albumose.

Addition of iodin: slight reddish tint, hence no starch, but probably erythrodextrin.

Addition of tannic acid: abundant precipitate. This reagent is precipitated by so many substances that the significance is not apparent.

Boiling with alkaline solution of copper sulphate: abundant reddish precipitate, hence sugar.

On evaporation, 100 c.cm. of the "liquid peptonoids" yielded a sirupy mass which, on further drying at rather too high a temperature, gave forth the odor of caramel, and was evidently slightly charred. The dry residue weighed 7 grams, and was mainly composed of sugar. Dialysis left nothing but the charred particles. In order to make sure that the drying had not carbonized some of the proteids—a supposition that was improbable, as no characteristic odor was noted—a quantity of the original liquid was dialyzed for several days, the water in the dialyzer always yielding sugar, and the liquid that did not pass through the parchment-paper was tested. It still contained sugar, showing that the dialysis was not complete. On evaporation over a Bunsen flame a small amount of sirup was obtained, which was then allowed to evaporate at the temperature of the room and then redissolved in cold water. Although the temperature used in evaporating had been sufficient to precipitate ordinary albumins and gelatinous substances, there was no residue after redissolution. Tannic acid, however, still gave a slight white precipitate and iodin a reddish tinge, presumably due to erythrodextrin.

As the word *peptonoid* is not in official use, it would not be fair to insist that it should apply to true peptone. It suggests, however, some form of peptonized albumin or gelatin, and it must indicate the presence of some proteid in order to fulfil the claims made for the preparation as a nutritive. Yet the reaction with tannic acid is the only one that even suggests a proteid, even the xanthoproteic reaction being absent.

This report is not intended to condemn "liquid peptonoids;" even if the liquid contains nothing but sugar, dextrin, and alcohol it has some value, though it is manifestly not suited for sustaining life in typhoid fever or any other wasting disease. The burden of proof rests with the manufacturers to show why the tests enumerated do not reveal the presence of the albuminous substances which are implicitly claimed; they should certainly not ignore a specific inquiry as to composition when it comes from a possible customer.

Granting that "liquid peptonoids" contains all that is claimed for it, the medical profession should not accept and medical journals should not advertise a preparation whose true formula is not given. We are not children to be put off with such explanations as "This is nutritious," or "alterative," or "valuable in uterine troubles," or "composed of derivatives of the aromatic group," or "a combination of analgesics." The very fact that manufacturers can afford to market their wares on such generalizations shows that a large proportion of us are lacking in brains or backbone, or both.

POSTSCRIPT BY DR. HENRY LEFFMANN, OF PHILADELPHIA.

The examination of a sample of "liquid peptonoids" purchased in the original package in Philadelphia confirms the statements made by Dr. A. L. Benedict. The article is a clear, brownish fluid with a distinct vinous odor. It leaves, on evaporation by the steam-bath, 11.2 per cent. of residue containing much carbohydrates. The liquid portion contains much alcohol. There is no unconverted starch, and but a small quantity of proteids.

The "Beef-peptonoids" manufactured by the same firm was also examined, and found to contain much undissolved starch. Under the microscope numerous granules of wheat-starch can be seen. Some proteid matter in a soluble form is also present.

## MEDICAL PROGRESS.

***Syringomyelia of Morvan's Type in a Child.***—THOMAS (*Revue Médicale de la Suisse Romande*, 1895, No. 11, p. 596) has reported the case of a boy, six years old, who presented himself on account of diarrhea, but whose hands were noticed to be large, though short, as well as cyanotic, and to display other peculiarities. The last phalanx of the left index-finger had almost entirely disappeared, a small fragment of nail remaining. The same phalanx of the middle finger was separated from the rest of the finger by a deep furrow. The extremities of the thumb, of the ring-finger, and of the little finger were swollen and the nails incurvated. The terminal phalanx of the right thumb had disappeared; the ring-finger and the little finger presented the thickened remains of nails. The thenar and hypothenar eminences were less well developed than the other muscles of the upper extremities, although not displaying marked atrophy. The muscles of the lower extremities were not well developed and the feet were cyanotic and cold. The skin over the knees presented a number of cicatrices from previous injury. The nails of the great toes were thickened; the last phalanx of the right little toe had been lost in consequence of a burn. In standing, the child had a tendency to incline the body forward; in walking, the legs were separated and the heels were trod upon. The station was unsteady. Tactile sensibility was normal, while painful sensibility was impaired upon

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the hands and feet; there appeared also to be thermo-anesthesia. The knee-jerks were abolished. Urine was under control, but the sphincter ani was incontinent. Electric examination disclosed only quantitative changes, the muscles contracting in accordance with their volume. It was further learned that the child had been born asphyxiated at term, after a difficult labor. He had been nourished from the bottle and had suffered considerably from digestive disorders. His first tooth appeared at eighteen months, and he was not able to walk until he was five years old. At the age of four years he had been burned by a hot brick being kept too long in his bed. He had been operated upon for phimosis and had been twice cauterized over the sternum. He had also had measles and whooping-cough. The precise date of the onset of the disease could not be determined. It had, however, been noted for two years that the child burned himself frequently and had repeated destructive whitlows without complaint of pain.

***Two Cases of Hereditary Congenital Night-blindness.***—ATWOOL (*Royal London Ophthalmic Hospital Reports*, 1895, vol. xiv, part 1, p. 260) has reported the case of a young man who had never been able to see clearly at night. When out after dark he had to exercise great caution in order to avoid knocking against other people and objects in his path. The man related that this peculiarity had existed in different members of his family for at least three generations. He had two sisters and two aunts who were night-blind. His father and grandfather had been similarly affected. The patient's vision was 6/6 in each eye and accommodation was normal. The visual fields were normal, both for white and for colors, when taken by diffuse daylight; on lowering the illumination, they were much contracted. Direct vision did not appear to be excessively diminished on lowering the illumination. Appreciation and discrimination of color were perfect. Ophthalmoscopic examination disclosed only physiologic cupping of the discs, and pulsation in some of the retinal veins. A sister of this patient, a hospital-nurse, complained of the same difficulty of seeing in a bad light, to such a degree that she was afraid to venture out of doors alone at night. The right eye had been operated on for internal strabismus. The girl's refraction was hyperopic. The visual fields were normal except that those for green were slightly and uniformly contracted. The pupils were active; the media clear; the discs and retinal vessels normal. The ground of the fundus was dark and looked granular, but there was no pigment to be found in the retina; neither were any spots to be seen at the macula or elsewhere. The choroidal vessels were very apparent. Neither of the cases presented nystagmus. Both had dark hair and there was no lack of pigment in any part of the uveal tract.

***Intrauterine Rupture of the Anterior Abdominal Wall.***—BROTHERS (*New York Medical Journal*, vol. lxii, No. 23, p. 707) has reported the case of a newborn infant presenting partly developmental and partly acquired lesions of intrauterine origin. The mother was a multipara who had experienced no difficulty in previous labors. The pregnancy in question had been attended throughout with considerable pain, but there had been no known fall or injury. Labor was rather precipitate, the child striking the floor with some force after expulsion. It was alive, but presented, a half-inch to the right of the umbilicus, a rent of the abdominal wall an inch in diameter, through which from fifteen to twenty inches of the small intestine had escaped. The child was well nourished. The umbilical opening was entirely closed and contained the stump of the cord. The opening in the abdomen was somewhat ragged and along one margin presented distinct adhesions to the gut. The intestine was much congested and swollen and the mesentery discolored. Further investigation disclosed the absence of genitals and anus. Instead a large open space covered with mucous membrane, a little more than an inch in diameter, extended from the pubes to the coccyx. To either side of this cloaca (which represented the exstrophied bladder) were small projections representing the ununited halves of the clitoris. The child lived for twenty-five hours, the napkins showing that urine was secreted. The belief is expressed that the rupture of the abdominal wall and the eventration originated within the uterus, perhaps from some unnoticed maternal traumatism.

***Dislocation of the Shoulder-joint of Unusual Origin.***—BAXTER-TYRIE (*Lancet*, No. 3767, p. 1165) reports the case of a man who was riding a horse that ran away up a steep hill. After going a few hundred yards the animal abated its speed, when the rider raised his hand to strike. The horse, catching sight of the whip, sprang forward, while the man felt an acute pain and a sense of something having given way at his shoulder. He did not fall off, but rode a little further and was helped to dismount. On examination a subcoracoid dislocation of the head of the humerus was found. The explanation is that as the weight of the whip was inconsiderable (four ounces) the inertia of the arm converted it into a lever of the first order. The coraco-acromial arch, instead of fulfilling its normal function of preventing displacement, acted as a fulcrum. The limb from the fingers to that point acted as the "long arm," and the head and part of the neck of the humerus served as the "short arm." The inertia of the arm, left behind as it were, supplied the power, while the ruptured capsular ligament and displacement of the head of the bone would represent the work done.

***The Influence of the Antitoxin-treatment of Diphtheria upon the Duration of Intubation.***—As the outcome of a careful clinical study, BOKAI (*Deutsche medicin. Wochenschrift*, 1895, No. 46, p. 755) has found that the period of definitive extubation oscillates between two wide extremes, in his own experience, between a quarter of an hour and 360 hours. The average duration of intubation before the advent of the antitoxin-treatment of diphtheria was 79 as against 61 hours in the cases subjected to this treatment, a gain thus of 18 hours. In view of the fact that in 16.2 per cent. of cases in which intubation was successfully practised the period of intubation exceeded 120 hours, the recommendation to perform secondary tracheotomy to prevent pressure-ulceration in case definitive extubation cannot be performed in five days, is not to be indorsed. The time for performing secondary tracheotomy under these con-

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ditions is a variable one. The undoubted existence of ulceration from the pressure of a tube is an indication for tracheotomy, but the fear of such an accident is not

***The Transmission of Tuberculosis Through the Sexual Organs.***—As a result of an extended study, DOBROKLONSKI (*Vratch*, May, 1895; *Revue de Tuberculose*, 1895, No. 3, p. 195) arrives at the conclusion that the existence of primary tuberculosis of the genital organs in men and in women is indisputable and that the presence of the tubercle-bacillus in the genital secretions is possible, so that infection may take place if the tubercle-bacillus comes in contact with the mucous membrane of the genital tract. It is probable, however, that infection will take place only when a tuberculous focus exists in the genital organs of a tuberculous individual. This latter condition is so uncommon that infection through this channel must be rare. Tuberculosis of the genital organs may remain localized and give rise to no symptoms for a long time, throughout which the danger of transmission naturally exists. Investigation has also shown that tuberculosis may be transmitted in sexual intercourse between those with pulmonary tuberculosis, even in the absence of tuberculosis of the genital organs.

***The Microorganism of Measles.***—CZAJKOWSKI (*Centrabl. für Bakteriologie u. Parasitenk.*, Bd. xviii. Nos. 17, 18, p. 517) relates that since his first observation in 1892 he has studied bacteriologically the blood of 56 cases of measles—in 37 only microscopically, but in 19 by culture and animal experiment—and he invariably found one special organism. This he describes as a slender bacillus with blunt ends and actively motile. Most frequently single organisms are found in the blood-plasma, often attached by one extremity to a red blood-corpuscle; less commonly irregular groups of bacilli are to be seen. The organisms vary in length, the smallest being not quite 5$\mu$ long and less than half as thick; bacilli measuring the diameter of a red blood-corpuscle are common. The organism stains with the usual anilin colors and not by Gram's method. Cultures develop upon various liquid and solid media containing albumin, with the exception of gelatin and agar. Their growth seems to be favored by the pressure of blood or hematogen. The best culture-medium is sterilized ascitic fluid. Rabbits proved refractory to inoculation; mice succumbed, with symptoms of septicemia, and the special bacilli were found in the blood and parenchymatous organs.

***A Case of Intractable Galactorrhea.***—TUSSENBROEK (*Nederlandsch. Tydsch. v. Verlosk. en Gyn.*, Bd. v, Afl. 2) has reported the case of a woman, 31 years old, married four years, who was unable to nurse her child on account of total absence of nipples. The use of atropin, potassium iodid, and electricity failing to control the persistent galactorrhea, which had existed for five months and which had resulted in great emaciation, the breasts were amputated and recovery soon ensued. Microscopically the milk-globules were of variable size; colostrum-corpuscles could not be found. The removed organs were large and soft, and presented histologically deviations from the normal that led to the view that the galactorrhea was due to increased secretion.—*Der Frauenarzt*, 1895, No. 11, p. 504.

# THERAPEUTIC NOTES.

***The Treatment of Eclampsia.***—ZWEIFEL (*Centralblatt für Gynäkologie*, 1895, Nos. 46, 47, 48) details at considerable length the various plans employed at the women's clinic at Leipsic in the treatment of eclampsia, together with the results secured. This experience leads to the following conclusions: When the convulsions set in during labor, this is to be terminated in narcosis as speedily as possible. Should the cervix be softened but the external os not dilated, dilatation should be carefully effected with the aid of distensible rubber bags, or, at most, small incisions may be made. If, however, the cervix is not obliterated, although the os will admit a finger, rubber bags should be employed; longer incisions will now be required. Should the convulsions continue after the uterus have been emptied and hemorrhage not have been excessive, free venesection may be practised, especially if the arterial tension be high. Under the latter condition blood may be withdrawn even before labor if the cervix be unyielding. Nothing is to be given the narcotized patient to swallow; fluid may be introduced into the stomach through the tube; lavage is to be practised when digestive disturbance exists. Either chloroform or ether may be employed to induce narcosis. The most rigid asepsis is to be observed throughout, as infection may be responsible for a continuance of the attacks.

***Poisoning with Nitric Acid.***—MOSER (*Brooklyn Medical Journal*, vol. ix, No. 12, p. 755) has reported the post-mortem findings in case of poisoning with nitric acid. The mucous membrane of the mouth was yellow, that of the esophagus softened. In the latter the longitudinal folds were abnormally prominent, and covered throughout their entire length by yellowish streaks. The mucous membrane between these folds was a little reddened and soft, but not stained. The mucous membrane of the stomach, from its cardiac to its pyloric extremity, was converted into a thick, greenish-black slough. The mucosa was thrown into prominent folds. There was no perforation. The mucosa of the duodenum was softened and yellow. The small intestine was but slightly affected, and contained a black fluid. The intestinal discharges were of a bloody character. The heart, the blood, and the spleen presented no change. The kidneys and liver showed parenchymatous alterations. The pancreas was the seat of parenchymatous inflammation, with punctate hemorrhages.

***Surgical Uses of Kerosene.***—SCHIRMAN (*New York Medical Journal*, vol. lxii, No. 23, p. 720) reports the satisfactory employment of kerosene as a local application to wounds and ulcers of the trunk and extremities. Ulcers, especially indolent and atonic ulcers, were smeared with commercial kerosene, either pure or diluted (from 35 to 50 per cent.) with alcohol, by means of a small camel's-hair brush or with a piece of gauze soaked in the solution. The appearance and character of the ulcers soon changed for the better, the discharge gradually diminished, and in from two to four weeks the rapidly granulating surface formed a scar without any contraction in the surrounding parts. The advantages claimed for kerosene are rapidity of action, economy of cost, and freedom from complications and toxic effects.

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## THE SERUM-TREATMENT, WITH ESPECIAL REFERENCE TO DISEASES OTHER THAN DIPHTHERIA.

ABOUT a year ago the principles underlying blood-serum therapy were discussed at some length in these columns. At that time it was stated that in all probability not only had a real curative agent for diphtheria been found, but also that, as a consequence, the working out of similar therapeutic measures for many, if not for all, of the acute infectious diseases might justifiably be prophesied. The experience of the year just past has fully confirmed the most sanguine hopes entertained concerning the antitoxin-treatment of diphtheria, and to Behring and to the investigators in bacteriology who made his researches possible are due the gratitude of a world of mothers and fathers, in that a disease which perhaps more than any others is a household dread has been rendered when uncomplicated almost as innocuous as an ordinary cold. At the close of an article containing the masterly presentation of statistics already referred to in THE NEWS, Dr. Welch makes the following remarkable statement: "The results of the treatment of over 7000 cases of diphtheria by antitoxin demonstrate beyond all reasonable doubt that antidiphtheric serum is a specific curative agent for diphtheria, surpassing in its efficacy all other known methods of treatment for this disease. It is the duty of the physician to use it!"

The attempt of Gottstein to prove the fallacy of certain of the statistics concerned, although somewhat disturbing to "those of little faith," has been convincingly combated by Behring in his address delivered this summer at Lübeck, in which he carefully considers the different data in question, and makes strikingly evident by a series of graphic curves the real condition which prevailed. Behring claims that, taking everything into consideration, the mortality in diphtheria may be reduced by at least 75 per cent. by the application of the antitoxin-treatment. For example, according to the mortality-reports, there are in Germany, a country of 46,000,000 of people, on the average 60,000 deaths yearly from diphtheria. Of these, then, and they are mainly among children and young people, according to Behring, it would be possible to save the lives of at least 45,000.

There is no virtue in a skepticism which remains uninfluenced by facts. The reading of the two articles referred to, even without taking into consideration the standing of the authors, can hardly fail to convince any individual with a logical mind that the efficacy of the antitoxin-treatment of diphtheria has been definitely established.

Considerable advances have been made too in the matter from a technical standpoint, particularly with reference to the concentration of the serum. As a result of suggestions offered by Ehrlich, the serum can now be obtained in much more concentrated forms than before. The fear that the demand for serum could never be met by the supply has been dissipated. Behring has calculated that, should diphtheria continue in its ordinary prevalence in Europe and America, from one-million to two-million doses of the curative serum would be required yearly. The establishment at Höchst-on-the-Main, is already capable of an annual output of over one-million doses of five-hundred antitoxin-units each. If one institution can do this there need surely be no fear concerning the possibility of the production of a world-supply.

Though naturally most attention has been directed toward the antitoxic serum as a curative agent, its virtue as an immunizing agent has not remained unrecognized, and the injection of the fluid as a prophylactic measure is coming continually more and more into use. Now that many of the dis-

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agreeable phenomena, *e. g.*, urticaria, can be obviated by beginning with smaller doses than those first employed, the objections to the employment of the serum are being removed. The results of experimental immunization have yet to be determined in a much larger number of cases and in various countries before the time will come for passing judgment upon this aspect of the subject. Behring believes that in the end, through the combined influence of the new therapy and prophylaxis, we may confidently expect that the dread of diphtheria will ultimately become a legend handed down from ancestors.

Concerning the exact nature of the immunity conferred by antitoxic serum, there is comparatively little to add to what could be said last year. The experiments of Freund, Grosz, and Jelinek, of Vienna, bearing on the relation of the effects of antitoxins to the processes of coagulation of the blood may be mentioned in passing. These investigators have found that neither nucleinic acid nor nuclein possesses the power of counteracting the effect of diphtheria-toxins when injected together, while on the other hand histon and other substances that have a tendency to prevent coagulation are capable of keeping animals alive after the injection of ordinarily fatal doses of diphtheric poisons. While by such injections these investigators have not, so far, been able to obtain results in animals as brilliant as those that the antitoxic serum can yield, they do not think these impossible of attainment, and conclude that at any rate there must be a very close relation between the processes of blood-coagulation and those of passive immunization.

In view of the settled success of serum-therapy in the treatment of diphtheria it becomes interesting to review briefly the steps which have been taken to apply the same principle to the treatment of other infections and intoxications. It is not surprising that a large number of workers should have turned the current of their research in this direction, and that attempts have been made to prepare specific antitoxins for a whole series of diseases. In the prosecution of the work, however, unexpected difficulties have arisen on many sides, and in no one of the other infectious diseases has any success at all comparable to the results in diphtheria been as yet attained. Vaccinia, smallpox, scarlet fever, tetanus, typhoid fever, cholera, the streptococcous infections, the bubonic plague, syphilis, and tuberculosis, as well as pure intoxications, such as poisoning by abrin, ricin, and venene, all have been studied to a greater or less extent, and with varying success. Ehrlich obtained in animals antitoxins for abrin and ricin in a high degree of concentration, but these antitoxins are naturally of limited therapeutic application in human beings, since cases of poisoning by abrin and ricin are extremely rare. The antitoxin of Calmette, Phisalix, and Bertrand, for rattlesnake-poison, has not yet been produced in a quantity or quality suitable for general application in cases of poisoning in human beings. The results with scarlet fever and syphilis so far offer but little of promise. The same may be said of typhoid fever, although in this disease Pfeiffer and Kolle claim that they have demonstrated in the blood of animals treated for some time with typhoid-toxins a substance in considerable concentration which has a specific bactericidal effect on the typhoid-bacillus. Beumer and Peiper, who injected a sheep at intervals during three months with sterile bouillon-cultures of the typhoid-bacillus, obtained from the animal a serum which possessed marked antitoxic properties, but no direct power (in contradistinction to the work of Pfeiffer and Kolle) of destroying the typhoid-bacilli. They found that when injected into small animals the serum possessed definite immunizing properties against the subsequent injection of the toxins of typhoid, and also proved that the effects of the toxins could be counteracted by subsequent injections of the serum. These observations went to prove, therefore, that the serum possessed healing or curative powers. They experimented sufficiently with human beings, they claim, to show that the injection of the serum was innocuous.

Yersin, Borel, and Calmette have recently been experimenting with the bacillus of the bubonic plague, and have been able to obtain from animals an actively antitoxic serum, which they hope may soon be made available in the treatment of actual cases of the disease.

As to smallpox and vaccinia the results are still conflicting. Kramer, Boyce, Straus, Copeman, Hlava and Honl, Sternberg and Reed are among those who have interested themselves in this subject. At the present stage the only important point definitely proved is that there exists in the serum of successfully vaccinated animals certain substances which possess some powers of neutralizing vaccine-lymph, and also of immunizing certain

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moderately susceptible animals against vaccinia. The investigators in this field, like those experimenting with scarlet fever and syphilis, have to deal with a disease the etiology of which is unknown, and are thus working at a considerable disadvantage, since in order to obtain the toxins necessary to concentrate the antitoxic substance in serum it is highly desirable that the microorganism which causes the disease not only be known, but also be easily cultivated.

*Le serum antistreptococcique* of Marmorek is a product of Pasteur's laboratory in Paris. Marmorek obtained from rabbits a serum, 0.2 c.cm. of which sufficed to protect an ordinary rabbit against a subsequent inoculation with ten times the fatal dose of a culture of streptococci. The cure of an animal after the infection was under way proved to be a more difficult matter. Marmorek found when he worked with a virulent streptococcus, infection with which ran ordinarily a rapidly fatal course, that a rabbit infected three hours before with ten times the fatal dose could be saved by the injection of 1 c.cm. of the antistreptococcous serum. He found, on the other hand, that if five hours had elapsed as much as 5 c.cm. had to be injected in order to save the life of the animal, and that after six hours even quite large quantities of the serum were of no avail. In the case of infection with streptococci of ordinary virulence, however, the animals could be saved by injection as late as twenty-four or thirty hours after inoculation. The serum was proved, therefore, to have some curative powers, but whether its favorable effect was due mainly to germicidal or to antitoxic influences is not clearly stated. Marmorek claims that the serum is specific for streptococcous infections. He experimented with it in the treatment of 413 cases of erysipelas, 17 cases of puerperal fever, and a whole series of anginas and localized streptococcous infections, and thought that its use had brought about a marked diminution in the mortality. It has to be remembered, however, that in a disease like erysipelas, in which the ordinary death-rate is only about 5 per cent., before we are justified in passing judgment upon the efficacy of a new treatment, experience with a much larger series of cases is necessary than when dealing with a disease like diphtheria, in which the average mortality has always been very high.

The work of Gromakowsky upon erysipelas, done in Pawlowsky's laboratory in Kiew, with the serum of immunized animals, is of too limited an extent to add much to our exact knowledge upon the subject. The treatment of carcinoma and sarcoma with the "erysipelas-serum" of Emmerich and Zimmerman does not fall into the category with which we are at present concerned.

Were there only the foregoing results to report, the outlook could not be said to be so very encouraging, but there are three diseases, viz., tetanus, cholera, and tuberculosis, in which advances of greater promise have been made, and for which we have reason to hope that the very near future may yield results sufficiently satisfactory to warrant the use of new serums in the case of human beings.

The first experiments with the tetanus-antitoxin belong to the earliest researches bearing upon the presence of antitoxic substances in blood-serum. Indeed, tetanus was the first disease in which, as a result of animal experiment, positive immunizing and healing results after the use of antitoxin could be demonstrated. This may at first seem strange, in view of the fact that the results in the treatment of tetanus have not up to the present been more satisfactory. According to Behring, investigators had until recently been unsuccessful in obtaining a serum as rich in tetanus-antitoxin as he himself had been able to prepare nearly three years ago as a result of the introductory work done by himself and Kitasato. The greater field opened by the researches on diphtheria led Behring to abandon temporarily his investigations upon tetanus. The serum of Tizzoni and Cattani, which has been used in a number of human cases, is commonly recognized to be insufficient. In France, Nocard, Roux, and Vaillard, who have worked extensively on antitetanic serum, express the opinion as a result of their researches thus far that there is more hope of the serum proving successful as a prophylactic than as a curative agent. On the other hand, Behring stated in his address at Lübeck that Knorr had recently made such improvements in the preparation of the serum that the treatment of tetanus in human beings promises to enter upon a new era. Owing to the rarity of the disease and the expense of the preparation, however, there is some doubt as to whether the industry will ever be prosecuted on a large scale.

As to cholera, the extensive experiments of Pfeiffer have tended to show that the substances present in the blood of animals immune to cholera were not antitoxic to the toxins produced by the bacillus. Pfeiffer found in the serum what he called

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*Antikörper* (anti-bodies), substances which were specifically germicidal to the cholera-bacilli; and while he did not claim that it is impossible to make antitoxins for cholera, they were, he thought, certainly not present in the serum with which he worked. The announcement of Ransom that he had succeeded in determining the presence of antitoxin in the serum of animals immune to cholera was objected to by Pfeiffer on the ground that Ransom's experiments were made with doses of poison only two or three times the *dosis minima lethalis*, so that the results could fall within the domain of the effects of normal serum. Pfeiffer has the hope that these germicidal *Antikörper* may be concentrated sufficiently for use as a prophylactic agent and as a curative agent in mild human cases. That they will be beneficial in the severe cases associated with severe intoxication he thinks improbable; nay, in such cases he suggests that they might even do harm, since by destroying a large number of bacilli they would lead to an increased absorption of toxins.

Much more hopeful are the later reports of Ransom's work. He now seems to have obtained an antitoxic serum which renders harmless from four to six times the minimal fatal dose of cholera-poison. He thinks that he sees his way clear to the preparation of a serum which will render harmless ten times the minimal fatal dose, and it is promised that when this serum can be obtained in quantities it will be made generally accessible, and we shall have the opportunity of trying it in cases of cholera in human beings.

Perhaps as interesting as any are the efforts which are being made toward obtaining a serum antitoxic for tuberculosis. A most important step in the process was made when Koch did his work on tuberculin, an advance the significance of which, owing to the disappointments of an impatient world, was temporarily clouded, and a discovery which, if the prophecy of Behring be correct, will be celebrated, in the not very distant future, with greater *èclat* than that of the toxins of diphtheria. Koch was the first to draw general attention to the fact that the disease was definitely infectious. He placed under the microscope the bacillus which caused it; he devised the means of cultivating it outside the diseased individual; he separated the toxins from pure cultures of the bacillus in the shape of tuberculin, to which he showed that animals and human beings could become accustomed, and thus put the means in our hands for the discovery of the antidote and for measuring quantitatively its strength.

Behring probably stated a great truth when he pointed out that the possession of the poison (tuberculin) is the absolutely necessary preliminary to the preparation of the future curative agent for tuberculosis. In his opinion the articles of Koch on tuberculin must be studied thoroughly by the man who will eventually find a cure for tuberculosis. Behring himself affirms that the whole serum-therapy is an outgrowth of Koch's work on tuberculin, and does not hesitate to acknowledge that he himself was led to enter upon his researches on tetanus and diphtheria simply on account of his conviction that it was possible to do with other bacterial poisons what Koch had demonstrated to be true of tuberculin. The explanation of the fact that animals could become accustomed to tuberculin was attempted at first by conceiving of a gradual development of insusceptibility on the part of living cells repeatedly subjected to moderate doses of poisons. After the brilliant researches of Behring and Kitasato with the antitoxins of tetanus and diphtheria, it became possible to think of the production of blood-antitoxins as a satisfactory explanation of the immunity which could be experimentally produced in animals to the toxins of tuberculosis.

As regards the immunization to tuberculin and tuberculosis in human beings much work has been done in various quarters. The results of Vargas, of Barcelona, with a serum prepared by Mataro, reported in a recent number of the *Revista di Ciencias Medicas*, are so remarkable that they do not seem to us to be worthy of serious consideration. Paquin's serum, obtained from horses after inoculation with cultures of the tubercle-bacillus, has for some time been on the market, and there are occasional reports concerning its use. The experiments made with it by Hewetson, in Trudeau's laboratory at Saranac Lake, would make it appear that this preparation possesses little if any power to check the progress of tuberculosis in guinea-pigs. Numerous reports have been made in Paris to the *Société de Biologie* on experiments relating to the serum-therapy of tuberculosis, but the majority of them contain but little which promises definite results.

Maragliano, in an address before the last meeting of the British Medical Association, spoke of his

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experience with the serum obtained from dogs, asses, and horses, after inoculation with toxins of tuberculosis of hitherto unheard-of concentration. In this way he asserts that he obtained a serum which, when injected in suitable quantities along with tuberculin, prevented both the local and general reaction induced by tuberculin. He has used his serum in some seventy-six clinical cases of tuberculosis with, he claims, very satisfactory results. As regards circumscribed and afebrile forms of pulmonary tuberculosis, the results were exceptionally brilliant, and even in severe cases a remarkable amelioration of the condition could often be brought about.

During this year Wernicke, at Behring's suggestion, undertook to demonstrate the presence of an antituberculin in the blood of patients who had been treated for a long time with tuberculin. In this attempt he was successful, and quite recently Behring, in conjunction with Knorr, has been able to demonstrate the presence of antituberculin in the blood of animals rendered experimentally immune to tuberculin. Animals suffering from tuberculosis in a certain definite stage were given subcutaneous injections of absolutely fatal doses of tuberculin. In some, along with the tuberculin, the blood serum from an immunized animal was injected; in others the tuberculin alone was administered; all the former lived, all the others promptly succumbed. Having once determined in this way the existence of antituberculin, the next problem to be solved will be a technical one, and concerns its preparation and concentration, for then, and not till then, shall we be able to test the efficacy of antituberculin in cases of human tuberculosis. Of the experimental work of Trudeau in this country nothing has recently been made public, but much may be hoped for from this quarter.

It is obvious, therefore, that aside from diphtheria, serum-therapy offers as yet to the practising physician more of hope than of achievement. But, as Behring points out, it has always taken the world several centuries to discover a genuine curative agent, and seeing that thus far all the medicines worthy of the name can be written upon a single finger-nail, one should be content with serum-therapy did it yield no more for a long time than a cure for diphtheria. But with the combined force supplied by hygienists, bacteriologists, pathologists, and clinicians, in all quarters of the globe, we may hope that in a certain number at any rate of the diseases to which we have referred, practically applicable results of serum-therapy may be speedily attained.

## "THE DEVIL."

OLD-FASHIONED tuners of the piano were accustomed to banish the enharmonic discrepancies of the keyboard to one portion, which was called the devil. All the discords were thus shoved into one octave, which in playing was used as gingerly as possible. It was convenient, but very clumsy and unscientific. The naming of this musical (or unmusical) octave was doubtless in imitation of the theologic habit of ascribing all the inexplicable evil in the world to Satan, thus at one stroke relieving both God and man of the responsibility for sin.

It is hardly to be denied that the habit of mind illustrated by the piano-tuners and the theologians also obtains even in this scientific age in the actual practice of medicine. Perhaps we fall into the habit by accepting it from our patients who are perfectly satisfied if they may believe, *e. g.*, that all their pains and ills are due to "the nerves," or "the rheumatiz," or a "rush of blood to the head." It may be expressed in language more or less erudite and polite, more or less mystifying, and apparently scientific, but in a final analysis, whether we call it "neurasthenia" or "the nerves," it is all one—"Doctor, I've got the nerves, *bad!*" Or, "I'm sure if my stomach was all right, *I'd* be all right."

At such pathetic *sancta simplicitas* we may at first be minded to smile cynically, but we soon find our smile becoming sympathetic with the thought that we are all more or less "tarred with the same stick." We are just as absurd in much of our pathology—we mean the pathology of routine practice, not that of the lecture-room and scientific essay, although it is not entirely absent even there. But when the average physician cannot cure, and when he can account for a morbid tendency or fact in no other way, how common, how very common, it is to shove the difficulty away into some part of the body about which he knows nothing, or which he cannot possibly reach with his therapeutics. This organ or part we might as well call "the devil," as did the old tuners of the piano, for the habit is based upon exactly the same mental characteristics.

For generations the mystic organ of womanhood was the convenient octave of discords to which were ascribed all the ills of womankind. Hysteria,

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as we know, is derived from ὑστέρα, the womb, and the etymology to-day indicates a commonly accepted pathology. But even those who have emancipated themselves from this gynecologic ὑστέρον πρότερον, often only do but generalize and expansify the "explanation," and ascribe to the popular but nonlocalized goddess, Hysteria, the woes otherwise inexplainable and incurable. It sounds, however, to expert ears, very like the old-fashioned "the devil take her!"

In the cases of men and boys, and often in women, the explanation of hysteria becomes too far-fetched, and we are prone to rid ourselves of the labor of a more accurate diagnosis, or to hide the impotence of our therapeutics by some cabalistic word, such as "cachexia," "heredity," "diathesis," or "neurotic history." But, frankly, is it not often the piano-tuner's trick over again?

One by one the mystic source and home of pathologic discords is invaded by the modern scientific spirit of medicine, and his Satanic majesty is incontinently driven to more recondite retreats. Just at present we are witnessing his expulsion from the stomach. It is true that we are still far from understanding the mysteries of the chemistry and physiology of digestion. But precisely because of these mysteries—greater far in the past than now—the stomach has been the favorite organ to which to ascribe all incurable or nonunderstood complaints. It was clearly felt that if "the devil" could be chained up there, everybody, patient and professor alike, would feel contented that duty had been done, and that further ills must be endured in a proper spirit of resignation. Of course, if one had anorexia, headache, palpitation of the heart, morbid sleepiness, or what not else, to say "it is the stomach" is perfectly satisfactory, and there the matter should rest. If you are not satisfied with this "explanation"—well, you are a strange person, that is all!

The habit of locating the source of mysterious evils in the stomach is an old one, as may be proved by consulting the history of medicine, where may be found naïve examples. For example, in Lanfrank's *Science of Cirurgie*, the old English translation of about 1400, in treating of cataract, we read: "Signes of the bigynnynge ben these. It semeth to the patient that he seeth bright thingis tofore him & him thinkith that oon thing is ii thingis or thre, & sumtyme it semeth to him that thing that he seeth to be ful of holis, & sumtyme these thingis may come of evil disposition of the stomac, & than it is not so greet drede therof; for whanne the stomac is curid, these signes wolen go awei. In this maner thou shalt wite wher it come of the stomac or of the eyes," etc.

When one considers the varying atrocities and outrageous abuses heaped upon the digestive tract by all nations, and especially by the lower classes of civilization, one is inclined to grow cynical when to the splendid stomach is ascribed a thousand multiform ills originating elsewhere. The conviction grows that much of all this is again a placing upon this maltreated organ the sins of discord belonging throughout the whole keyboard, and in reality modern medicine is so finding the matter out. Notwithstanding the awful dietetic and other abuses it endures, we are learning that, far from being a self-complaining organ, the stomach is wonderfully meek and long-suffering, and that, moreover, instead of only having its own evils to bear, it is made the scapegoat of the sins of many other organs. Considering the digestive function as a whole, its duty is the tremendous one of manufacturing the crude and often wretched materials given it into highly complex and perfect products for cellular nutrition. To this difficult task is often added that of caring for and getting rid of the drugs and dietetic crimes that are commanded by doctor or patient or quack, in the delusion that the stomach is at fault.

It is no exaggeration to say that tons of drugs and seas of "mineral waters" have been thrust into stomachs for headaches due solely to eye-strain. One would find it a humorously impossible task to estimate the amount of nux and cod-liver oil taken for anorexia and anemia really due again to ocular or other distant malfunction. In the minds of many physicians there will probably still long remain the habit of pushing the devil into the stomach, but the new application of the scientific spirit to diseases of the digestive tract is surely to result in finally driving him from that stronghold. In all such instances of lazy diagnosis it will more and more prove impossible to rest satisfied with this convenient bit of slipshodism. If due to the stomach, we are now coming to ask details: How? In what way? Why? How to be treated? The day has about passed when we can rest satisfied that all scientific and therapeutic duty has been done by giving a thing a name, and an inapproachable abiding-place. Test-meals, analysis of stomachal

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contents, estimates of secretions, measurements, and all the rest are at last making it uncomfortable for the stomachal Mephisto. He doesn't relish the descent into his realm of "a string with a bucket-like thing." It is plain he will have to migrate to some more inapproachable abode—say the liver, or the spleen, or the medulla.

And so it is to whatever aspect of medicine we turn. The scientist is abroad in the land. His restless and unsatisfiable hunt for causes, his discontent with inaccurate and incomplete diagnoses, is fast driving the devil of disease out of all his retreats. This novel sort of "diagnosis by exclusion" is the order of the day, and the supposed evil spirit of morbidity is being hunted out of all the mysterious hiding-places consecutively given him by the laziness and ignorance either of patient or physician. Just as a scientific understanding of the laws of sound and of piano-construction banished the phonetic devil from the modern piano, so the same spirit of investigation and of thoroughness is driving his *alter-ego* of disease from any one and from all parts of the human economy. It makes the practice of medicine more onerous to the conscientious physician, and it slowly weeds out the nonconscientious and the easygoing. But this is self-evidently all the better for the profession, and especially is it better for humanity.

## EDITORIAL COMMENTS.

***State Children's Council of South Australia.***—There are no orphan-asylums and no orphans in South Australia. This little State, with an area of 904 square miles and a population of 500,000, takes care of 1124 destitute children (Report of July 1, 1895); 996 of these children were placed out in families at an annual expense of £7976. There were 31 girls and 45 boys in the reformatory, and 50 other children in the schools for the blind and the deaf, in the lunatic asylum, and other institutions. Two children absconded during the year. During the last two years the number of destitute children has diminished. At the "Children's Court," 202 were charged with various offences during the year, an increase of 24 cases over the previous year. Only three children were found "residing in brothels." It is interesting to note the result of State care in families of children committed for criminal offences. During five years 104 girls have been "placed out," after brief training in the girls' reformatory. Of these, 62 are doing well, 25 are bad, 5 are doubtful, and 12 are not yet reported. Many of these bad girls have been enticed into the city after the expiration of their sentences, and thus easily fell into their old ways. In the care of the criminal boys a greater success has been attained. The sentence of 147 boys has terminated during the same period, and 137 are reported as doing well.

There is nothing new to report in relation to the system of placing children out. The Children's Council now has 1007 thus cared for; 616 are boarded out, 251 are licensed to service, 52 are adopted, 18 are placed out without subsidy, 49 are licensed to relatives, 2 are apprenticed, 8 are out of the colony with guardians, and the rest are in schools for defectives, in hospitals, and other places. The Council received during the year 7277 reports in relation to these children; 3382 from visiting committees; 2056 from inspectors; and 1839 from school-teachers. In classifying these reports on the conduct of the children and condition of the home, 5104 and 5354 respectively reported good; 269 and 74, fair; 57 and 9, indifferent; and 8 and 1, bad. The reports of the teachers show that the children are carefully taken care of and apparently well treated, and that with few exceptions they are well behaved.

There were 368 applications made for children: 94 from Roman Catholic families, 77 from Church of England, and 197 from other Protestant applicants; 266 of these were approved.

In the savings banks the children had £2458, about $12,000, of their own earnings, at the beginning of the year. This has been increased by £726 deposits and £78 interest during the year; £523 has been paid to children.

Five children have died during the year. One was drowned. Rheumatic fever, congenital syphilis, lymphemia, and marasmus, each took off one.

The Children's Council was able to collect from parents £1096 for maintenance-fees and other similar fees sufficient to make a total of over £2237. The total income of the Council was £14,276, and the net cost to the State of the work of the year was £13,104.

It is unnecessary to mention the fact that in all the Australian provinces the system of "placing out" now prevails. The method is cheaper, better, and more humane than any form of huddling the poor and miserable together, and is attended with a lower death-rate and fewer defectives.

***Epistaxis through the Eyes***—A recent brief editorial note on epistaxis through the eyes develops what should be a well-known fact, *i. e.*, that many curious occurrences may escape an individual experience, however large. In response to our inquiry as to other cases similar to that referred to in THE NEWS of November 30th, we have received further reports from five correspondents.

Dr. T. L. Wilson, of Bellwood, Pa., relates the case of an old lady of seventy-eight whom he found with the blood gushing from the nostrils. After plugging the nares thoroughly with absorbent cotton dusted with tannic acid he was surprised to see the blood ooze out around the eyelids and trickle down the cheeks. This oozing continued for the greater part of an hour, being finally controlled by applications of ice to both sides of the nose.

Dr. F. L. Donlon, of New York City, reports the case of a married woman, about fifty years old, in whom epistaxis set in suddenly at 11 P.M., and had continued for several hours, when the anterior nares were plugged. In a short time the woman complained that she could scarcely see, owing to the welling up of blood into her eyes and trickling down her face. The bleeding only ceased when the posterior nares also were plugged.

Dr. G. A. Neal, of Alabama, N. Y., details the case of a housekeeper, seventy-five years old, who had had sev-

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eral severe left-sided nasal hemorrhages during three days before she summoned medical aid. On plugging the affected nasal cavity, both anteriorly and posteriorly, blood immediately appeared in the corresponding eye in drops that would have trickled over the cheek had they been allowed to collect. The bleeding continued thus for several minutes. Some thirty-six hours later, and before the plugs had been removed, the woman felt more fulness than usual in the diseased nares, and blood soon again appeared in the eye. This time but a few drops passed through the lacrimal duct. The woman gave a history of having had nasal catarrh for many years, but never epistaxis, of any account at least; neither has the hemorrhage recurred.

Dr. T. G. Wright, of Plainville, Conn., narrates the case of a young man whom he found in the night bleeding profusely and having already lost a large amount of blood. Shortly after plugging both anterior and posterior nares the blood found its way through the lacrimal ducts to the eyes and trickled down the cheeks.

Dr. Charles W. Crumb cites the case of a man, sixty-five years old, with chronic nephritis, in whom a slight bruise of the nose was followed by epistaxis lasting twenty-four hours. When the nares were plugged blood escaped freely from the eyes. A cone-shaped bit of sponge, saturated with ferrous sulphate, was passed into each anterior naris, and another piece of sponge similarly medicated into either posterior naris. The patient had been taking various preparations of potassium, and it was thought that his blood contained a deficiency of fibrin. Upon removal of the nasal plugs a catarrhal inflammation developed which lasted a long time and was attended with considerable purulent discharge.

***The William Pepper Laboratory of Clinical Medicine.***—Philadelphia has recently been enriched by the addition to her scientific resources of the William Pepper Laboratory of Clinical Medicine, a gift to the University of Pennsylvania by the present incumbent of the Chair of the Theory and Practice of Medicine and of Clinical Medicine, in memory of his father, who occupied the same chair from 1860 to 1864, in which latter year his death occurred from pulmonary tuberculosis at the age of fifty-four years. The plans for the building were prepared by Dr. John S. Billings, the Director of the University Hospital (in especial conjunction with which the laboratory will be conducted) and Professor of Hygiene in the Medical Department of the University. Dr. Pepper will himself be the first director of the laboratory, who, together with the assistant director, is appointed annually by the Board of Managers of the University Hospital upon the nomination of the Professor of the Theory and Practice of Medicine and of the Professor of Clinical Medicine. The specific purpose of the laboratory is the promotion of the interests of the patients in the University Hospital "by the prosecution of minute clinical studies and original researches, and to advance the interests of science by the publication of the results of such work." Instruction will be given to graduates only of approved medical schools whose curriculum corresponds with that of the Medical Department of the University, and provision will be made for advanced workers engaged in original research.

Dr. Pepper has in the past been lavish to the University of Pennsylvania in the giving of time, energy, influence, and money to advance the interests and to secure the welfare of the institution with which he has for many years been so closely identified, but this last gift is the crowning act of a career marked by tireless activity and munificent generosity. He has created for himself a monument more noble than carving of stone or casting of bronze, and his example should be an incentive to others to further the great work which he has thus begun.

The University of Pennsylvania, as well as our city and State, is to be congratulated upon this welcome addition to her scientific armament from which mankind may expect so much of genuine benefit.

***The Lying-in-hospital Business*** seems to be profitable and on the increase. The names of doctors by the dozen are appended to the circulars that frequently come to us. We have before alluded to this strabismic use of the profession. We do not say that all such institutions are bad, or indeed that any are, but it is noticeable that emphasis is always laid upon the phrases, "those who for any reason desire confinement away from home," and "a home is provided for the infant if the parents desire to part with it." It would seem from the experience of older countries in this delicate matter that there should be legislative and governmental oversight of these multiplying *lying-in* houses, or the name will degenerate into a very truth-telling pun.

## SPECIAL ARTICLE.

### *A TRIP TO MEXICO.*

BY DOUGLASS W. MONTGOMERY, M.D.,
OF SAN FRANCISCO, CAL.;
PROFESSOR OF DISEASES OF THE SKIN, MEDICAL DEPARTMENT OF THE UNIVERSITY OF CALIFORNIA.

IN view of the International Exposition to be held in the City of Mexico next year, I have thought that a short account of my trip to that picturesque country last May might be of interest to the medical fraternity.

Going from California to Mexico by way of the Southern Pacific Railroad one crosses Arizona. There is no doubt of this Territory being a desert, and that the sun is mistress of the situation. She rises in the morning like "a fair, hot wench in flame-colored taffeta," and she retires at night in the same outfit. The glare is even worse than the heat, and it seemed to me that I had never seen people with more wrinkles around the eyes and with smaller "eyeslits," evidently caused by the effort to keep out the intense light.

While passing through Arizona I had the pleasure of meeting Dr. Helm, of Phœnix, who gave me an account of a disease of which Dr. George Chismore had first told me. It appears that a fly, the scientific name of which is unknown to me, deposits its eggs in the nostrils of those who lie unconscious in the sun—of a man who is dead drunk, for instance. The resulting maggots are pointed at both ends, and are called "screw-worms." Having secured lodgment, they give rise to a destructive inflammation of a most disagreeable, and, if unchecked, dangerous nature. Dr. Helm has had several cases of the malady, and says that the insufflation of calomel-powder for two or three days will destroy the pests. He had one case in which they

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complicated a fracture of the lower jaw, but were quickly driven out by the treatment mentioned.

At El Paso we changed from the Southern Pacific to the Mexican Central Railroad, and here it is well to be prepared for a "cinch" of the kind that travellers in all countries are exposed to. If the Southern Pacific train reaches El Paso behind time, which I understand it frequently does, one is told that the Mexican Central train has already crossed the river to Juarez, and that one will have to hurry across after it in order to allow time for the examination of baggage. One is also told that the transfer-coupon on the through ticket is of no use in the present emergency, but that a baggage-transfer company will undertake the job of getting the embarrassed traveller and his luggage across for a consideration. It can easily be seen that this little matter had better be settled with the Southern Pacific Company on purchasing the ticket, as it is likely to be arranged more satisfactorily at that time. The Mexican Central Railroad running from El Paso to the City of Mexico is really an American road, owned in Boston, and having American officials and train-hands.

On the way down I asked the Pullman conductor how they got along in the recent Pullman strike. "Oh!" he said, "we didn't strike. President Diaz sent a proclamation along the line that if any trains were interfered with, he would put a law meant for brigands into effect; that any man caught stopping a train or diligence would be taken out and shot within twenty-four hours without trial. So we didn't strike." I spoke about the strike to every train-hand that gave me the opportunity, and the strange thing about it was that they very evidently bore Diaz no ill-will for his high-handed procedure. Diaz's mode of meeting the difficulty was as high-handed as unlawful, according to our ideas, and as arbitrary as the strike itself. These same trainmen, however, could not find words strong enough to express their disapprobation of the deliberate legal measures adopted in the United States. It all means that these men, who, in ordinary questions, are shrewd and fair enough, have not yet learned to know law when they see it. The capitalist has his way of making a fool of himself, too; but, as Rudyard Kipling would say, that is another story.

The sleeping-cars are not nearly so comfortable in Mexico as in the United States. It is said that the Pullman Company sends its oldest coaches into "the dusty Republic," and one can well believe it. I had a rather amusing experience in one of them. In going from Silao to Jimenez I took the drawing-room, and at first it was delightful, especially the *sans gêne* opportunity one had to wash one's self; but later on, when I went to bed, I found there was too much draft. I closed up everything, but still I slept in a tornado, and, being tired and sleepy, at last gave up the search for the mouth of the cave of the winds. Next morning I saw what was the matter. The drawing-room was at the forward end of the car, and there was a large space under the outer door of the coach, and a corresponding one under the door of the drawing-room. In order to be comfortable, therefore, the drawing-room should have been at the rear of the car. I had a first-class "cold" to pay for the experience; but this was not all. Either through some defect in the construction of the soil-pipe, or because the car was going wrong end first, each time the water-closet lid was raised a gust of wind swept up it and straight into the drawing-room. The odor complained of by Don Quixote on the night of the adventure of the fulling-mills was at least in the open country.

In buying money do not get the notes of any of the individual States, if you do not want a too practical acquaintance with the intricacies of the modern Aztec monetary system. In El Paso, which is in the State of Chihuahua, I offered some Chihuhua State Bank notes in payment for my sleeper to the City of Mexico, but the money was refused because they were State Bank notes. They, however, took Mexican National Bank notes readily; that is to say, perfectly good State Bank notes were refused in the very State on which they were drawn. I afterward disposed of this money in the City of Mexico at a discount of 4 per cent. This is the financial system many of our own long-haired financiers would have us adopt in reviving the wild-cat State Banks in this country. Mexican silver money is a weariness to the flesh. Nothing makes a man so spendthrift as lugging a lot of silver when it is down to its true value, as it is in Mexico. Forty dollars of it is a load for a jackass. We Yankees are in better luck. Uncle Sam is the jackass.

During my entire trip in Mexico it struck me that a change from a gold to a silver monetary basis in our own country would be disastrous in regard to medical fees, and this is a view of the question that naturally most interests us. The bulk of our income is collected in small amounts in the office. These fees are largely regulated by custom, and custom would dictate that what is now a five-dollar fee in gold would continue to be a five-dollar fee in silver. This custom for the rank and file of the profession, especially in the older States, would be unbreakable. A few of the great specialists in the large cities would possibly be unaffected by it, but even they would feel it for the first few years while values were being readjusted.

The high plateau, the flattened back of the Rockies, or the Sierra Madre, as these mountains are called in Mexico, which includes nearly the whole of the area of the country, is arid and dusty. The water-supply of the cities and towns is wretched. Guadalajara, for instance, which is a large, clean-looking, well-built city, with an air of industry and thrift, has still the vicious system of bringing drinking-water from outlying springs on donkey-back. The lazy water-carriers often draw their load from a nearer, and possibly infected, source. Dr. Orvañanos has given an instance[1] of a whole family attacked by diarrhea from drinking water that showed a large amount of organic matter. Their water-carrier afterward confessed that he drew his supply from a more convenient spring than he was supposed to use. In other words, it is a system requiring more than ordinary vigilance to secure good service.

The plateau is from 5000 to 7000 feet above the sea-level, and the consequent rarity of the atmosphere, together with the arid climate, causes a rapid loss of fluid by evaporation. This must be compensated by drinking enormous quantities of liquid. It is, therefore, all the more necessary that the water-supply be pure. All the water I drank was boiled either in the form of

[1] Ensayo de Geographia Medica y Climatologia por el Dr. D. Orvañanos, 1889, page 49.

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tea, coffee, soup, or simply as boiled water, till Guadalajara was reached, where natural human carelessness asserted itself, with a disagreeable diarrhea as a result.

There is a number of medical schools in Mexico, but the one in the Capital is the largest, having from 350

FIG. 1.

Nervous type of leprosy.

to 400 students. The cost of maintenance and the salaries of the professors are borne by the State, the students paying no fees whatever. Five years are supposed to be occupied in preparatory studies before commencing the study of medicine, and five years in the medical school proper. They think of lengthening the time spent in the medical school to six years, which would be a mistake. Four years is long enough to give a man a good grounding in the main branches of the profession, and he should then be permitted to take his degree. After being out of leading strings he may elaborate his knowledge in any direction he pleases.

A curious and a very injurious feature of medical education in Mexico is the almost exclusive use of French text-books, or text-books translated into French. In Guadalajara, for instance, they use a French translation of Eichhorst's *Practice of Medicine*. I understand they have introduced one Spanish text-book into the school in the City of Mexico—Ramon y Cajal's *Histology*, which, if it comes up to some of the rest of that author's work, should be an excellent production. The students read the French works, but receive their lectures and answer their questions in Castillano. This continual use of foreign literature must be a clog to originality of research on the part of both professors and students, and consequently a great misfortune to both Mexico and the world, as each country has something peculiar to itself to bring to the general stock of medical knowledge.

The human foot is so tender and so liable to injury that the proper protection of it has interested many men, especially army-surgeons, who see the necessity of keeping the soldiers' feet in good condition on long marches. It has often been contended that the Mexican sandal is an ideal foot-gear for marching, as it allows freedom of movement in every direction, and does not scald the foot by retaining the sweat in a confined space, as the boot is prone to do. This *guarache* or *catle*, as it is called, resembles the apostolic sandal we are accustomed to see in sacred pictures. It is made of a thick piece of cow-hide, and is bound to the foot by leather thongs. The *guarache* is picturesque, and no doubt the Mexicans find it fairly comfortable, as they are a remarkably handy people in the use of leather for all sorts of purposes, and probably can bind on a sandal much better than we could. Even so, however, its superiority to the shoe is doubtful, and this opinion would seem to be reinforced by the fact that it is being gradually discarded in the Mexican army itself. One would think that the thongs would cut into the flesh on a long march.

The clothing of the ordinary Mexican is scanty. When he sits down in a wet place he finds the fact out at once. He wears cotton drawers, a cotton shirt, sandals, a blanket, and a hat like a circus-tent. Yet there is very little pulmonary tuberculosis, although the climate at times is severe enough. This absence of tuberculosis among the Mexican Indians is in marked contrast to the condition of our own aborigines in this respect. That light raiment is not a matter of choice, but of poverty, is shown by the way the richer people wear woollen goods. In the matter of food, too, the poor live on a vegetable diet almost exclusively, while the well-to-do indulge in a wearisome number of meat-

FIG. 2.

Tubercular type of leprosy.

courses. In reference to this an amusing incident occurred while I was in Mexico. It appears that a number of negro families had been induced to migrate from our Southern States to Durango. In a short time the pork and flour furnished by the company gave out. As

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there were neither chickens nor hogs to steal, they had to come down to the diet of the country—brown beans. Sambo could not stand that and struck out for home. As I was going down through Mexico they were straggling back to the States along the line of the Mexican Central Railroad. A Mexican on the train, in speaking of the matter, maintained, and quite learnedly, that laborers did not need meat in the Mexican climate. He himself, however, ate meat at all meals, and I especially remember seeing a nice piece of ham on his plate. As far as I can make out man eats meat in every climate, if he can obtain it.

There is considerable leprosy in Mexico, and there does not appear to be either much fear of the disease or much effort to segregate it. In the Hospital de Belén in Guadalajara there were about half a dozen lepers scattered about the wards. One of them had the atrophies, deformities, and ulcerations of the hands and feet, such as occur in neural leprosy, but the trunk, neck, and head were entirely free from disease. In fact, Dr. Garciadiego, who kindly showed me the case, drew my attention particularly to the man's magnificent physique and to the clean skin of the trunk, head, and neck. Another case presented the tubercular type, and the lepra-tubercles formed huge symmetric masses on the face, giving the patient a most peculiar appearance. I had these two cases photographed, and have inserted reproductions in this article. I saw a leper of the neural type begging at the station at Jimenez; his fingers and toes were shortened, his palms flattened, and there was paralysis of the right orbicularis palpebrarum.

## SOCIETY PROCEEDINGS.

### SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

*Eighth Annual Meeting, held in Washington, D. C., November 12, 13, and 14, 1895.*

(Concluded from page 671.)

SECOND DAY, NOVEMBER 13TH.

*Afternoon Session.*

DR. JOHN A. WYETH, of New York City, delivered a memorial address on

DR. J. MARION SIMS AND HIS WORK.

He said it was safe to say that Marion Sims attained the highest position ever achieved in the history of the profession. He stands alone in this; his reputation as a surgeon was so world-wide that in any capital, in any country within the domain of civilization, he could have commanded at any time a lucrative practice. Assuredly, there does not exist in the history of surgery another such distinction. In New York, London, Paris, Brussels, Berlin, Vienna, Rome, Madrid, Lisbon, and St. Petersburg he found himself everywhere sought after, not only by the patients he could benefit, but by the leading members of his own profession, who were anxious to pay tribute to his wonderful genius. The study of his life should instil hope into the heart of every student. Born amid the most humble conditions in a backwoods county of South Carolina, he died the foremost surgeon of his country and of the world. What a transition from the log-cabin of the poor farmer in Lancaster District to the palace of Saint Cloud, where he was the guest of Napoleon III, the trusted physician to the Empress, as he was to the highest and lowest of those who sought relief at his hands in any part of Europe!

Toward the higher and purer civilization the progress of man is slow. As yet the shadows of barbarism linger about him. His heroes are the destroyers, the Cæsars and Napoleons, who covered the earth and buried beneath it lives, sacrificed upon the altar of personal ambition. But the time must come when those whose genius and works give life and health and happiness to the world will be the first in the heart of man. In this purer temple of fame, along with those of Jenner, Ephraim McDowell, Morton, Lister, Pasteur, and others, generations yet unborn shall read the name of Marion Sims.

At the close of Dr. Wyeth's address, remarks eulogizing Sims were made by Drs. Robinson, Wilson, Nelson, Marcy, Engelmann, Kollock, Vander Veer, Gaston, Tiffany, and Westmoreland, most of whom had enjoyed his personal acquaintance.

DR. GEORGE BEN JOHNSTON, of Richmond, Va., read a paper entitled

COMPARATIVE FREQUENCY OF STONE IN THE BLADDER IN THE WHITE AND NEGRO RACES.

He said that it is commonly stated by writers on urinary diseases that stone in the bladder is of rare occurrence in the negro race. This is so at variance with the author's experience that he has instituted an investigation either to prove the statement or to correct the fallacy. He selected the States of Virginia, North Carolina, South Carolina, Alabama, Georgia, Tennessee, Kentucky, Florida, Louisiana, Mississippi, Arkansas, and Texas as the field of inquiry, and corresponded with four-hundred representative practitioners in order to procure the necessary data. He received 338 responses, 94 of which contained information and the remainder were negative. He succeeded in collecting 1068 cases of stone in the bladder. Of these, 952 were in white subjects and 116 in negroes. It is at once observed that the negro cases represent 9.55 per cent. of all cases reported. This showing is quite sufficient to disprove the idea of immunity which the negro is supposed to enjoy.

Geographically these stones were distributed as follows: Alabama, 10; Arkansas, 11; Florida, 28; Georgia, 90; Kentucky, 56; Louisiana, 19; Mississippi, 9; North Carolia, 126; South Carolina, 66; Tennessee, 128; Texas, 98; Virginia, 430.

Sex is specified in 780 cases and is not stated in 280. Of those in which the sex is indicated, there were 691 in males and 97 in females, or about seven times more males than females.

There were 182 cases not subjected to operation, and 584 in which the stones were removed by the following methods: Lateral perineal, 249; median perineal, 100; suprapubic, 138; vaginal incision, 32; dilatation of the female urethra, 28; crushing, 35; in 5 the operation was not stated.

Of those operated on 541 recovered and 43 died. No report of operation was made in 304 cases. Dr. John-

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ston's own cases are incorporated in the foregoing statistics. During his twenty years' practice he has made notes in 41 cases. Of these there were 35 in whites, 6 in blacks; 39 in males and 2 in females. Thirty-nine were operated on and 2 were refused operation on account of advanced renal disease. Both of these died. In 25 cases lateral perineal lithotomy was done, in 12 suprapubic, and in the cases of the two females the urethra was dilated and fragmentation practised. There were no deaths following his operations.

DR. L. MCLANE TIFFANY, of Baltimore, Md., delivered the

PRESIDENT'S ADDRESS.

He said that the aim of the Association was twofold, namely, first, to do advanced work, and, second, to bring it to the notice of and to aid other members of the profession. The Fellowship of the Association was a very extended one, embracing a large territory with infinite varieties of soil, temperature, environment, etc., yet the *Transactions* did not show those local records from which facts may be generalized, applicable to the area from which the Fellowship is drawn. It did not seem reasonable for him to suppose that a surgical operation done among the mountains of Western North Carolina would behave quite the same way that a similar operation would if done on the Gulf coast of Texas. It did not seem reasonable that similar surgical operations on the banks of the Mississippi and the central plateau of Tennessee would behave the same way. Accurately kept charts with exact and careful notes would unquestionably show differences not yet placed on record by anyone and from which much clinical information could be learned. Again, he questioned whether surgical operations undertaken during the great heat of summer, or after the long continuance of summer heat, would show similar charts or give like results when compared with operations upon patients not subjected to high atmospheric temperature, either temporary or long continued. No association had a membership better situated or more competent to carry on a series of such investigations.

DR. WILLIS F. WESTMORELAND, of Atlanta, made some remarks on

CYSTOTOMY FOR STONE.

He said that any surgeon of the present day who had had a long and extensive experience in operating for stone must acknowledge that the upper operation is better and safer. Unless there is a pathologic condition of the blood or infection of the bladder, as recognized by chemic or microscopic examination, the surgeon could decide before operation what course to pursue. Dr. Westmoreland said that the anatomy of this region, as laid down by the investigations of Strong and Peterson upon the cadaver and frozen sections, led the surgeon astray, and the observation of the surgeon is more to be depended upon than any literature we have thus far pertaining to the subject. In operations for stone, the author said that he does not care whether he sees the base of the bladder or not; that he depends upon touch, and that therefore rectal distention might be dispensed with. In the place of rectal distention he recommends that a vessel of water be suspended three or more feet above the patient according to the amount of distention necessary. When the surgeon desires to effect distention of the bladder by a vessel, if the bladder is ulcerated at any point, with a thickening here or a thinness there, it could be done without sudden force, and if the patient during an operation should sneeze or cough, or contraction of the bladder take place, instead of contracting upon a solid mass of fluid, the fluid is forced back into the vessel and there is practically no increase in pressure.

DR. CORNELIUS KOLLOCK, of Cheraw, S. C., read a paper on

ABDOMINAL PREGNANCY.

After referring to the pathology of extra-uterine fetation and the classification of its varieties by early writers, he reported the following interesting case: On October 18, 1894, he saw for the first time a dark mulatto, 34 years of age, the mother of three children, whose general health had been good until within the last fifteen months. The abdomen was very much distended, measuring at the umbilicus 63 inches. Fluctuation was evident and wave-tap very distinct. The patient affirmed that she was pregnant, and that she had gone four months beyond the actual period of gestation. After a thorough examination celiotomy was decided upon, and an incision was made four inches in length below the umbilicus. The walls were so thin that the instrument penetrated the cavity before it was certain that the abdominal muscles were divided. There was a sudden and copious discharge of offensive matter. An immense fibroid was removed from the anterior portion of the sac. The cavity also contained a fetus weighing 10 pounds. The placenta had undergone fibroid degeneration, with only a small part of the placental tissue remaining. The patient was extremely weak when operated on. She lived for five or six weeks after the operation, and Dr. Kollock thinks she would be alive to-day were it not for the unfortunate intervention of intestinal obstruction.

DR. J. T. HENRY, of Chester, S. C., reported

A CASE OF EXTRA-UTERINE PREGNANCY.

The abdomen was freely opened and a large, dark mass the size of the head of an adult came into view. The uterus was crowded very much forward. The mass lay posterior to it and was very much adherent to the fundus posteriorly and to the promontory of the sacrum. The fimbria of the right tube spread out over the covering of the mass. It was with some difficulty that the mass was freed from its attachments, except that portion at the fundus of the uterus, and it was thought best to remove the uterus with it; and this was done after tying and cutting the broad ligaments. The fetus was five inches long and lay between the placenta and the uterus, the cord being attached to the left margin of the placenta. The abdomen was thoroughly washed out with sterilized water and closed without drainage. The patient sat up on the fourteenth day after the operation, was out of bed in twenty-five days, and has gained 25 pounds in weight.

DR. HENRY O. MARCY, of Boston, read a paper on

THE TECHNIC OF THE BURIED SUTURE.

He said that constant receipt of letters, from all parts of the country, containing inquiries concerning a method for the safe application of the buried animal

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suture, prompted him to make this communication. At the risk of seeming dogmatism, he would venture to assert that aseptic wounds, with very few exceptions, should be primarily closed by buried tendon-sutures and hermetically sealed with iodoform-collodion. Carefully selected tendons are to be preferred for buried sutures, as primarily their anatomic constitution makes them stronger, more compact, and, as a consequence, more resistant to the softening processes that must ensue when buried in the living structures. When properly preserved, they have not been subject to bacterial decomposition, and hence may be sterilized without detriment to their ultimate elements. When tendon has been chromicized, it is best preserved in a sterilized oily fluid. Experience has shown that by far the best preserving fluid is linseed-oil sterilized by heat, to which carbolic acid has been added. Tendon improves so much when thus kept that Dr. Marcy rarely uses it until it has been in carbolic acid from three to six months. A method far too common has been to preserve chromicized catgut and tendon in absolute alcohol boiled under pressure. There is no question but that such material is absolutely sterile, but the important factor has been singularly overlooked, that by this process the chromic acid is dissolved out of the tendon, thereby leaving it less valuable than if chromic acid had not been used.

The infection of wounds may never be absolutely prevented, but the experience of surgeons teaches daily to what a marvellous extent it can be minimized, and reduced in aseptic wounds to less than 5 per cent. Not long ago the author examined his own personal experience, reviewing 600 operations, with only 2 per cent. of septic cases—evidence ample to show the safety of the coaptation of wounds by means of the buried animal suture.

One of the interesting features of the meeting was the presentation to the Association of a gavel made from the leg of the operating table used by Dr. J. Marion Sims in his office for twelve years preceding his death. It was the gift of his son, Dr. H. Marion Sims.

The following officers were elected:

*President*, Dr. E. S. Lewis, New Orleans, La.; *First Vice-President*, Dr. Joseph Taber Johnson, Washington, D. C.; *Second Vice-President*, Dr. Richard Douglas, Nashville, Tenn.; *Secretary*, Dr. W. E. B. Davis, Birmingham, Ala.; *Treasurer*, Dr. A. M. Cartledge, Louisville, Ky.; *Chairman of Committee of Arrangements*, Dr. W. D. Haggard, Nashville, Tenn.

Place of meeting, Nashville, second Tuesday in November, 1896.

## CORRESPONDENCE.

### *ILLINOIS STATE BOARD OF HEALTH vs. NORTHWESTERN UNIVERSITY WOMAN'S MEDICAL SCHOOL.*

*To the Editor of* THE MEDICAL NEWS,

SIR: In the July issue of various prominent medical journals appeared a letter from the Illinois State Board of Health, accompanied by a set of resolutions adopted by said Board. The undersigned, the Executive Committee of the Faculty of the Northwestern University Woman's Medical School, having carefully investigated this matter, desire to make the following report, in order that no injustice may be done to the State Board:

The resolutions adopted by the State Board are as follows:

WHEREAS, The Faculty of the Northwestern University Woman's Medical School adopted a set of resolutions criticising the Illinois State Board of Health for having issued to three non-graduate students of said college the State certificate entitling them to practice medicine, whom they claim were not entitled to receive them, and charging the Board with having adopted a lax policy in numerous other instances, thereby seriously detracting from the usefulness of the Board; and

WHEREAS, Although the resolutions were "ordered to be placed before the Illinois State Board of Health," they were furnished to the various medical publications of the country simultaneously with their presentation to the Board, and before the Board had an opportunity to make any defence; and

WHEREAS, The said college had not made any investigation of the methods or policy of the Board, and could not be in possession of information upon which to found such serious charges; and

WHEREAS, The Secretary of the Faculty admitted to the Secretary of the Board that the resolutions were adopted without due consideration, and were not so applicable to the present Board; and

WHEREAS, In the past two years no certificate has been granted to any applicant upon an average rating less than 80 per cent. on all branches, and the questions and examination-papers and a tabulated record of all examinations are preserved, and are matters of record in the office; and

WHEREAS, It is not in the province of the Board to adopt any policy regarding the admission to its examinations of non-graduates, the law prescribing that "non-graduates shall submit themselves for examination," and further prescribing that "the examinations shall be of an elementary and practical character;" therefore, be it

*Resolved*, That justice demands that the Faculty of the Northwestern University Woman's Medical School, and all others interested, inform themselves as to the methods and policy of the Illinois State Board of Health in conducting its examinations, with a view to the establishment of the charges made, or of making such withdrawal, alteration, or explanation of the charges as the facts may warrant; and, further, that the Faculty inquire as to whether any individual interest or personal animosity prompted the drafting and circulating of the resolutions.

(Signed)

B. M. GRIFFITH, M.D.,
SARAH HACKET STEVENSON, M.D.

The original resolution of the Faculty of the Northwestern University Woman's Medical School, to which the above refers, is as follows:

WHEREAS, On three occasions within the past three years the Illinois State Board of Health has licensed to practice medicine in this State students who have not properly qualified themselves for such duties, and whose incompetence has compelled us to withhold the degree of doctor of medicine; and

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WHEREAS, By common report we are informed that the State Board has adopted a similar policy with reference to numerous other persons; therefore,

*Resolved*, By the Faculty of the Northwestern University Woman's Medical School, that the State Board of Health be requested hereafter to make its examinations so rigid that persons incompetent to obtain the degree of doctor of medicine from first-class medical colleges cannot obtain licences to practice from the Illinois State Board of Health.

*Resolved*, That the State Board of Health be urged to do all in its power to secure a modification of the State law, so that the privilege of examination for licence to practice in this State can only be obtained by graduates of recognized medical schools in good standing.

*Resolved*, That for the protection of the lives and health of our people we believe it is the duty of the State Board of Health to do all in its power to prevent the entrance into the medical profession in this State of any persons not properly qualified; and, further,

*Resolved*, That in the interests of humanity and medical science we believe the State Board should make its standard of qualifications as high as that of the best medical colleges in this country, and that it should do all in its power to aid and encourage the efforts of the profession and the people for thorough medical education and higher requirements of licentiates and for the degree of doctor of medicine.

(Signed) MARIE J. MERGLER,
*Secretary*.

Replying to the State Board of Health, we beg to state that after thorough investigation we find that not only the three incompetent undergraduates referred to in our resolutions, but others similarly conditioned from our school, have been granted licence to practice medicine; and we find, further, that it is believed by medical teachers and other members of the profession that the State Board of Health has frequently conferred the licence to practise in the State of Illinois on undergraduates whose requirements were not sufficient to enable them to obtain the degree of doctor of medicine from the medical schools of the State that are recognized as in good standing by the Board of Health.

This policy is not calculated to advance the standing and active usefulness of the medical profession or to protect the public from incompetent practitioners. The Board of Health and its individual members have been *repeatedly* urged to discontinue this practice; but as these remonstrances have heretofore proved unavailing, the Faculty of the Northwestern University Woman's Medical School determined by public action to bring the matter to the notice of the profession, hoping thereby to obtain their aid in securing a better policy by the State Board.

The Board is in error in thinking that the Faculty acted hastily or without investigation, for it was familiar with the fact of the licencing of incompetent persons, not only from among *its* students, but among students of other schools. This practice has been in vogue since the first organization of the Board; but the last cases were, if possible, more flagrant and inexcusable than those which preceded them.

The Secretary of the State Board of Health is mistaken in stating that the Secretary of the Faculty of the Woman's Medical School said that the resolutions were adopted without due consideration, though another member of the Faculty did admit to him that if his statements were correct, the criticisms were not so applicable to the present Board as to former Boards; however, the Secretary is not aware that the practices of the present Board differ materially from those followed by earlier ones composed of a different membership.

Shortly after the original resolution was passed, the Secretary of the State Board of Health interviewed several members of the Faculty, and on one of these occasions stated, in extenuation, that the particular individuals now in the State Board of Health constituted an entirely different Board from that of former years. We are aware that the State Board of Health changes more or less from time to time in its *personnel*; but one of the signers of the series of resolution under consideration has been a valued member of the State Board for many years, and we cannot understand why he should have allowed such a practice as granting licences to incompetent persons at any time without a vigorous protest.

If the policy of the Board as now constituted is better than that of former years in this respect, it appears to be only a degree, for the same official, in one of these interviews, stated that no applicants for licence were now passed on an average of less than 85 per cent. on all branches, whereas the resolutions printed above place it at 80 per cent.; but he also admitted that formerly applicants were passed on a grade of 50 per cent. It must be borne in mind that the grade obtained on an examination depends upon the nature of the questions, the fairness with which they have been given out, the honesty with which they have been answered, the care taken to prevent cheating, the fairness with which they have been marked, and the qualifications of the examiner. Questions may be peculiarly easy; proper care may not have been exercised to prevent them from falling into the hands of the applicant beforehand or to prevent communication by the interpreters or others at the time of the examination, or the examiner himself may have marked too high. For example, an examiner who knew very little of anatomy might consider a very poor paper on that subject of exceptional excellence.

The Secretary of the State Board explained to us his efforts to prevent cheating among applicants for midwives' licenses, and he led us to infer that similar precautions were taken for those taking the medical examinations. He asked if we questioned the honesty or ability of certain members of the Board of Health; but, as we stated to the Secretary thereof, we cannot understand how an ignorant person, unable to obtain a grade of more than 35 or 40 per cent. on an ordinary examination for the degree of doctor of medicine, can come before the State Board within three, six, nine, or even twelve months afterward and pass an excellent examination. Teachers know that it is impossible to acquire a knowledge of medicine with this rapidity; therefore the inference would be that 80 or 85 per cent. by the State Board of Health is equivalent to little more than 35 or 40 per cent. by the colleges. If this is so, the State Board should raise its grade still higher or mark more carefully.

It was also admitted, in one of these interviews, that

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one of the persons referred to was in no way fitted to practice medicine; but it was claimed that the answers obtained from her in examination were excellent, and that the Board had no option in the matter. As a possible explanation of the excellence of the papers handed in by ignorant applicants, it was suggested that anyone could "cram" and pass a good examination on two or three subjects; and it was explained that it was the custom of the Board of Health to give those taking their examinations full credit for each and every branch in which they succeed in obtaining a passing mark, though they might utterly fail in all others. It will be readily seen that in an extreme case this policy would allow an applicant to pass one branch at a time every three months (we believe the examinations are quarterly) until the whole had been gone through, while at the time the licence was granted the person might not be able to obtain a general average of over 25 per cent. We are not informed, officially or otherwise, that the Board has even yet taken any step to correct this bad practice.

It is stated in these resolutions that the Illinois State Board of Health is not at liberty to adopt any policy regarding the admission of non-graduates to examination—that is, persons mentally or morally unfit to practice medicine must be admitted to the examination if they apply; but certainly the law cannot require the Board to issue licences to such persons. In our resolution we called upon the Board, if there were defects in the law, to make all proper efforts to have them remedied. We have not been informed, either publicly or privately, that it has made any effort in that direction.

In the resolutions by the State Board of Health we are told that the law demands that the examination shall be "elementary and practical." Though the law under which the Board of Health acts prescribes that examinations shall be of an elementary and practical character, it does not prescribe that the Board of Health shall confer on incompetent persons the privilege of practising medicine in Illinois; and the Legislature surely could have no such purpose in view when it enacted the law. If an applicant can pass a thorough examination in the elementary subjects of anatomy, chemistry, physiology, and materia medica, and a practical examination in pathology, obstetrics, practice of medicine and surgery, he would be able to pass the examination for the degree of doctor of medicine in almost any of the recognized colleges throughout the United States.

We deeply regret that the resolutions of the State Board of Health failed to remove the belief that their methods are faulty; and we personally know another student who obtained licence to practice during the past year who was unable to pass the examination for the degree of doctor of medicine this last spring. We have informed ourselves, so far as possible, of the methods and policy of the Board of Health, and we gladly embrace this opportunity to do it exact justice. The Faculty of the Northwestern University Woman's Medical School does not need to disclaim the suggestion that any individual interest or personal animosity prompted the drafting and circulating of the resolutions. This Faculty, individually and collectively, is friendly to the Illinois State Board of Health; but in the matter under consideration it has been constrained, as a matter of public duty, to question the wisdom and propriety of some of its acts. We will gladly be the first to give it credit when it corrects its faulty practice, and we will gladly aid it in securing any necessary legislation for elevating the profession and for the benefit of the people.

I. N. DANFORTH,
E. FLETCHER INGALS,
MARIE J. MERGLER,
*Executive Committee.*

### A QUESTION OF NOMENCLATURE.

*To the Editor of* THE MEDICAL NEWS,

SIR: I have received from the publisher of a directory a printed postal card containing a request that I would furnish my name and address, with the addition, "Please state whether allopathic, homeopathic, or other school." Is it not time that the insulting epithet "allopathic," applied to the medical body that has existed for at least twenty-three centuries, should be disallowed and rejected? If others take pride or pleasure in a sectarian title, by all means let them wear it as a badge of disgrace, but let not physicians imitate their shameful example.

Yours truly,
Æ.

PHILADELPHIA, PA., NOV. 27, 1895.

## REVIEWS.

DISORDERS OF THE MALE SEXUAL ORGANS. By EUGENE FULLER, M.D., New York. 8vo, pp. 241. Philadelphia: Lea Brothers & Co., 1895.

THIS new addition to the literature of sexual disorders of the male will excite the interest of the reader for the reason that it demonstrates the fact that the greater proportion of cases of sexual disturbance depend upon tangible and evident pathologic changes in the sexual apparatus, and are not all to be loosely relegated to the groups of neuroses or of physic affections, to which only the lesser proportion of them belong. The writer, who has devoted much time and labor to the subject he discusses, finds that in the seminal vesicles, the tissues surrounding them, and in the ejaculatory ducts are to be found most of the morbid changes that give rise to sexual disorders. An excellent chapter on the pathology discusses at length the nature and appearance of these changes.

The clinical features of acute, subacute, chronic, and tubercular seminal vesiculitis are thoroughly described, while the chapter on treatment and prognosis is both practical and satisfactory. For the subacute and chronic varieties the method advocated consists of digital pressure on the vesicles—"stripping"—through the rectum, a procedure in the execution of which it may be somewhat difficult to acquire dexterity, has certainly philosophic reasoning to support it.

The chapter on anatomy, with which the book begins, is most interesting, and contains the results of evident painstaking study of minutiæ of value, descriptions of which are not to be found in the ordinary work on anatomy. The illustrations, of which there are quite a number, are excellent, both as to faithfulness of representation and artistic merit.

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The book is one that will command the attention not alone of the specialist, but equally of the general practitioner. It is well worth reading, and offers much in the practical way that will be of use.

DIRECTIONS FOR WORK IN THE HISTOLOGICAL LABORATORY, MORE ESPECIALLY ARRANGED FOR THE USE OF CLASSES IN THE UNIVERSITY OF MICHIGAN. By G. CARL HAUBER, M.D., Assistant Professor of Histology and Embryology. Second edition, 8vo, pp. 191. Ann Arbor, Mich.: George Wahr, 1895. Price, $1.50.

THIS admirable little volume should prove of real service to the student of histology as a guide and aid in his work in the laboratory. It is not intended to take the place of existing text-books on the subject, but is to be employed in conjunction with these, and, while arranged especially for the classes in the University of Michigan, it can be used most advantageously by others. Its arrangemeut is simple, its directions clear and concise, and the ground covered ample. Suitable space is left for notes and drawings. The work is divided into two parts. The first consists of 25 lessons, which deals successively with the histology of the individual cells and tissues. In the second part are detailed methods of laboratory work, including the preparation of tissues for study. A prettily executed colored plate exhibits the several varieties of blood-elements stained according to recent methods. The book is eminently practical in character, and just such a one as the laboratory student in histology needs, and its merit should secure it a wide sphere of usefulness.

PRACTICAL URANALYSIS AND URINARY DIAGNOSIS. A MANUAL FOR THE USE OF PHYSICIANS, SURGEONS, AND STUDENTS. By CHARLES W. PURDY, M.D., Queen's University, Professor of Urology and Urinary Diagnosis at the Chicago Post-Graduate Medical School, etc. With numerous illustrations, including photo-engravings and colored plates. Second edition. 8vo, pp. xix, 351. Philadelphia: The F. A. Davis Co., 1895.

THE early exhaustion of the first edition of Purdy's *Uranalysis* justifies the favorable criticism accorded this publication. For the same reason there has not been time for extended addition to the text, although discovered errors have been corrected and two more colored plates have been introduced. We cannot do better than repeat that "this contribution of Dr. Purdy's is a useful addition to the literature of urinary examination. It is well and intelligently written, and, while taking cognizance of new tests, indorses only those that practical experience has shown to be reliable."

ANATOMY OF THE HUMAN HEAD AND NECK; GRAPHICALLY ILLUSTRATED AND DESCRIBED. By DR. SCHMIDT. Revised and edited by WILLIAM S. FURNEAUX. 4to, ill. p. 16. New York City: Thomas Whittaker, publisher.

THIS work consists of a series of folding plates, representing the chief organs in their anatomical relation to one another, together with a descriptive text written in a simple and popular style. Technical terms have been avoided as far as possible to satisfy the requirements of the non-scientific, while, for the convenience of the students, a list of references to the plates has been inserted by the editor, which gives the scientific names of the various parts. The descriptions are accurate and clear, and the plates will be useful to practitioners for the purpose of explaining anatomical regions and operations to patients. The plates would be improved by printing the names upon the parts instead of using reference figures.

THE MEDICAL NEWS VISITING LIST, 1896. Philadelphia: Lea Brothers & Co., 1895.

THIS favorite list is now published in four styles—weekly, dated, for 30 patients; monthly, undated, for 120 patients per month; perpetual, undated, for 30 patients per week per year; and perpetual, undated, for 60 patients per week per year (without text). The first three styles contain 32 pages of text and 160 pages of blanks. The 60-patient style consists of 256 pages of blanks, wallet-size, with flexible leather cover, pocket, and pencil.

## NEWS ITEMS.

***The American Medical Review*** is the title of a new "monthly review of current medical literature" published in New York City, and edited by Dr. Daniel Lewis, in association with Dr. George B. Bradley.

***Removal of The Medical News.***—The editorial and publication offices of THE MEDICAL NEWS are to be removed to New York City on January 1st. Further particulars will be given in the issue of December 28th.

### BOOKS AND PAMPHLETS RECEIVED.

Pulmonary Hypertrophic Osteo-arthropathy. By N. S. Davis, Jr., A.M., M.D. Reprint Journ. Am. Med. Assoc., 1895.

A Plea for the Cold Tub-bath Treatment of Typhoid Fever. By James Tyson, M.D. Reprint Therap. Gaz., 1895.

Bright's Disease and Insanity. By E. D. Bondurant, M.D. Pamphlet, 1895.

Address on the Founding of the Illinois Hospital. By Seth Scott Bishop, M.D. Reprint Journ. Am. Med. Assoc., 1895.

The Dilator in Diseases of the Air-passages and of the Ear. By Seth Scott Bishop, M.D. Reprint Nat'l. Pop. Rev., 1895.

The Degeneration-Chimera. An Answer to Nordau. By E. Spitzka. Reprint Am. Journ. of Insanity, 1895.

The Liver as an Organ of Elimination of Corpuscular Elements. By Gustav Fütterer, M.D. Reprint Medicine, 1895.

Surgical Interrogation-Points. By Samuel S. Wallian. Reprint Am. Therapist, 1895.

The Surgery of the Kidney and its Adnexa. By Bayard Holmes. Pamphlet. Chicago: Donnelly & Sons Co, 1895.

The Treatment of Laryngeal Tuberculosis, with a Report of Cases. By Robert Levy. Rep. N. Y. Med. Journ., 1895.

An Introduction to Pathology and Morbid Anatomy. By T. Henry Green. Revised and Enlarged by H. Montague Murray. Illustrated by 224 engravings. Phila.: Lea Bros. & Co., 1895.

The Urine in Health and Disease and Urinary Analysis, Physiologically and Pathologically Considered. By D. Campbell Black. Phila.: Lea Bros. & Co., 1895.

Disorders of the Male Sexual Organs. By Eugene Fuller. Phila.: Lea Bros & Co., 1895.

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# THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXVII. SATURDAY, DECEMBER 28, 1895. No. 26.

## ORIGINAL ARTICLES.

### POMPEIAN SURGERY AND SURGICAL INSTRUMENTS.[1]

BY N. SENN, M.D., PH.D., LL.D.,
OF CHICAGO, ILL.;
PROFESSOR OF PRACTICAL SURGERY AND CLINICAL SURGERY IN RUSH MEDICAL COLLEGE; PROFESSOR OF SURGERY, CHICAGO POLY-CLINIC; ATTENDING SURGEON, PRESBYTERIAN HOSPITAL; SURGEON IN-CHIEF, ST. JOSEPH'S HOSPITAL.

A RECENT visit to the ruins of Pompeii and the Naples Museum has enabled me to make a careful examination of the ruined homes and corroded implements of the Pompeian surgeons. A visit of this kind, with its wonderful revelations at every step, is a memorable event in the life of every student of ancient surgery who has enjoyed such an opportunity. Nearly two-thousand years have elapsed since the last surgeons of that ill-fated city practised their art. They perished or fled during that fearful eruption of Vesuvius that wiped out of existence so suddenly the two neighboring cities, Pompeii and Herculaneum, burying the former under a bed of burning ashes and incorporating the latter in a mass of lava. It is interesting to posterity that the city of Pompeii, with all its antique treasures, has been preserved for centuries under this removable mantle of the product of volcanic action, which has made it possible for the interested archeologists of the present century to unveil to us the works of art and science of two-thousand years ago. A walk through the streets of the recently uncovered city of Pompeii brings vividly to the mind of the visitor the life, works, virtues, and vices of its former inhabitants. The old aqueduct that supplied the city with pure water from the mountains is well preserved and remains as one of the marvels of engineering of that time. The pavements of the streets can compare favorably with those of our day. The bare walls of public and private buildings testify to the unrivalled perfection masonry had attained at that day. The crude stone mills operated by human power furnished the city with flour, which in the adjacent bakery was converted into bread.

The enormous wine-jugs, so numerous in places where wine was sold and drunk, remain as lasting mementoes that the Pompeians were by no means prohibitionists. The numerous houses of prostitution, both public and private, remain as silent witnesses of a vice which appeared to have been unusually prevalent at that time. The capacious forum, amphitheater, comic and tragic theaters that remain in a wonderful state of preservation, show that the people of that day—male and female, old and young—enjoyed the glittering stage and the bloody contests of the gladiators. The public bath-house is a marvel of its kind, and it is doubtful if in its artistic design and luxury it could be duplicated to-day. The private dwellings are all constructed on the same plan—masterpieces of comfort and sanitary construction. The numerous fountains furnished pure water for beast and man. The temple of Esculapius is one of the prominent landmarks of the former city, and fortunately time and the elements have dealt gently with its precious contents. In the center of the capacious anteroom stands the altar of pure marble, beautifully carved, at which the priests of old worshipped in the interests of suffering humanity. It is here where the sick, the maimed, and the injured sought relief. As I stood behind the altar where so many of the disciples of Esculapius had stood and performed their sacred functions, it seemed to me that I could hear the pitiable appeals of the suffering Pompeians and the sound advice and sweet words of consolation of the ministering priest. With the temple of Esculapius will always be associated the early history of medicine and the struggle between disease and its successful treatment.

A walk through the narrow, stone-paved streets of the uncovered part of the ruins of Pompeii is necessarily attended with serious thoughts of the past and present. The wider streets show deep grooves made by the chariot-wheels, while the narrower streets were reserved for pedestrians. The one-story buildings, both public and private, show a singular uniformity in their construction—evidence that the Pompeian architects and builders had in view more the comfort and health of their occupants than a desire to exhibit their talent. The many shops in the principal street were the homes and business-places of merchants who supplied the citizens with the luxuries and necessities of life. A large building on the corner of two streets served as a drug-store, where crude drugs were dealt out to those in need of remedial agents. The proprietor of this primitive pharmacy—living, as he did, next door to a

[1] Read before the Alumni Association of Cook County Hospital, November 18, 1895.

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public house of prostitution—in order to protect himself and family against intrusion of an undesirable nature, found it necessary to place above the entrance a sign to indicate to the prospective customer the legitimate character of his business, and to direct him properly if he was in search of pleasure.

Before giving a description of the surgical instruments exhumed from the ruins of Pompeii, it is necessary to say something of the city of Pompeii and its destruction.

The temple in the leper forum at Pompeii, generally called "the temple of Hercules," is the oldest extant ruin in the city, and it is safe to say that it is of the same period with the Poestum temples, as it corresponds exactly with them in architecture; hence we may safely date it at 650 B. C., and the history of Pompeii is thus narrowed between that date and 79 A. D., when we know from reliable sources that the final destruction of the city took place. Our inquiry thus extends over a space of about seven hundred years. For the first three-hundred we are in the regions of conjecture; for the last four hundred we are in the realm of authenticated history. When the Greek temple was built at Pompeii the place was in the hands of the Oscans, a pastoral tribe who came down the plains in the winter and fed their flocks in the hills in the summer. The Oscans were driven out of Campania in 420 B. C. by the Samnites, a tribe of hardy mountaineers who attained the height of their power about 350 B. C. and built a great part of Pompeii. The Samnites practically built the city; and wherever we find houses built of large blocks of stone, neatly joined together without mortar, we may safely predict their Samnite origin. Their work was all in the Doric style, and it was the Romans who covered it with stucco, transformed it into the Ionic style, and decorated it with tracery and paintings. The Romans occupied Campania in 88 B. C., and thereafter Pompeii takes its place in Roman history, and is frequently mentioned by Seneca, Pliny, and other contemporary writers. Toward the close of Nero's reign—that is to say, in the year 63 A. D.—the whole region was visited by severe earthquakes, which made such havoc that the cities were deserted for several years. The rebuilding of Pompeii appears to have been begun about 69 A. D., ten years before its final destruction, which took place on the 23d of November, 79 A. D. and appears to have commenced in the afternoon. It is well to observe that although Herculaneum and Pompeii were destroyed by the same eruption, they were destroyed in quite different ways. The former was filled up by a flow of warm, muddy water, which filled it with a soft paste; and subsequent eruptions have covered it with molten lava no less than eleven times, rendering excavation exceedingly difficult and costly. Pompeii, on the other hand, was covered with loose ashes and pumice-stone, which were ejected from the volcano to a considerable height and blown into the city by the violent northwesterly gale which Pliny tells us was raging at that time. In short, Pompeii can be excavated with a trowel, but it takes a chisel to make an impression on Herculaneum.

Lord Lytton has given us in his fascinating novel, *The Last Days of Pompeii*, a graphic and what must be considered as a correct description of the destruction of Pompeii. He connects the beginning of the terrible catastrophe with a public play in which Arbaces, the Egyptian, was to be turned over to the lion by the angry assembled multitude. The helpless Egyptian heard the shouting of the bloodthirsty audience and the roaring of the hungry lions, eager for their human prey, when he stretched his hand on high; over his lofty brow and royal features there came an expression of unutterable solemnity and command. "Behold!" he shouted with a voice of thunder, which stilled the roar of the crowd; "behold how the gods protect the guiltless! The fires of the avenging Orcus burst forth against the false witness of my accusers!"

The eyes of the crowd followed the gesture of the Egyptian and beheld, with ineffable dismay, a vast vapor shooting from the summit of Vesuvius in the form of a gigantic pine-tree; the trunk, blackness; the branches, fire!—a fire that shifted and wavered in its hues with every moment; now fiercely luminous, now of a dull and dying red, that again blazed terrifically forth with intolerable glare.

There was a dead, heart-sunken silence, through which there suddenly broke the roar of the lion, which was echoed back from within the building by the sharper and fiercer yells of its fellow-beast. Dread seers were they of the burden of the atmosphere, and wild prophets of the wrath to come! Then there arose on high the universal shrieks of women; the men stared at each other, but were dumb. At that moment they felt the earth quake beneath their feet; the walls of the theater trembled; and, beyond in the distance, they heard the crash of falling roofs. An instant more and the mountain cloud seemed to roll toward them, dark and rapid, like a torrent; at the same time it cast forth from its bosom a shower of ashes mixed with vast fragments of burning stone.

Over the crushing vines, over the desolate streets over the amphitheater itself, far and wide, with man a mighty splash in the agitated sea, fell that awfu shower. No longer thought the crowd of justic or Arbaces. Safety for themselves was their sol thought. Each turned to fly—each dashing, pres ing, crushing against the other. Trampling reck lessly over the fallen, amidst groans and oaths, an

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prayers, and sudden shrieks, the enormous crowd vomited itself forth through the numerous passages. Whither should they fly? Some, anticipating a second earthquake, hastened to their homes to load themselves with their more costly goods, and escape while it was yet time; others, dreading the showers of ashes that now fell first, torrent upon torrent, over the streets, rushed under the roofs of the nearest houses, or temples, or sheds—shelter of any kind—for protection from the terrors of the open air. But darker, and larger, and mightier spread the cloud above them. It was sudden and more ghastly night rushing upon the realm of noon! Darkness reigned, interrupted only by the occasional column of fire which escaped from the volcano and the frequent lightning that encircled and illuminated momentarily the mountain, which was the central point of the fearful panorama.

Pompeii had no street-lights. The frightened inhabitants brought their oil-lamps into requisition to expedite their flight. Frequently, by the momentary light of these torches, parties of fugitives encountered each other, some hurrying toward the sea, others flying from the sea back to the land; for the ocean had retreated rapidly from the shore—an utter darkness lay over it, and, upon its groaning and tossing waves, the storm of cinders and rock fell without the protection which the streets and roofs afforded to the land. Wild, haggard, ghastly with supernatural fears, these groups encountered each other, but without the leisure to speak, to consult, to advise; for the showers fell now frequently, though not continuously, extinguishing the lights, which showed to each other the death-like faces of the other, and hurrying all to seek refuge beneath the nearest shelter. The whole elements of civilization were broken up. Ever and anon, by the flickering lights, one saw the thief hastening by the most solemn authorities of the law, laden with, and fearfully chuckling over, the produce of his sudden gains! If, in the darkness, wife was separated from husband or parent from child, vain was the hope of reunion. Each hurried blindly and confusedly on. Nothing in all the various and complicated machinery of social life was left save the primal law of self-preservation!

It was under such circumstances that the city of Pompeii, with such of the inhabitants who failed to escape, was buried and preserved for futurity. The bodies of human beings and animals were charred by the heat, but their forms have been preserved as in a mold by the fiery ashes which fell around and upon them. We thus find in the museums at Pompeii and Naples the size and form of the victims of the eruption preserved to perfection by the substitution of plaster-of-Paris for the original mold. Without such a support the remains on exposure would crumble into dust. At the time of destruction, November 23, 79 A. D., Pompeii is said to have had about 30,000 inhabitants. The number of those who died and were buried in the ruins will never be ascertained. Up to 1824, 350 skeletons were found. Many have been discovered since that time, and many remain in the unexplored part of the city, while the remains of many have been removed with the detritus, unrecognized. It is, however, safe to assume that more than one-half of the population escaped the fiery death and sought shelter in the surrounding country. There is no doubt that soon after the disaster many of the Pompeians rescued a large portion of their valuables from their ruined houses, but the site of the city remained lost for many centuries.

*Excavation.* The first discovery of the ruins of Pompeii was made in 1595; and the first attempt at excavation was made in 1748. But it was not until 1860 that systematic exploration was pursued, and since then it has been scientifically carried on as far as means and opportunity have permitted. It is estimated that the whole of Pompeii will be cleared in about fifty years' time. At the time of my visit to the ruins, excavation was in active progress. With pick-ax and shovel the ashes and pumice-stone which cover and fill the streets and houses are loosened, and a small army of boys is employed to convey the same in baskets to hand-carts, which are propelled by hand-power, over a temporary railway-track. The workmen at this time were engaged in cleaning a large house, evidently an aristocratic residence, with walls and ceilings beautifully decorated by paintings, representing female beauty and animal life. The pictures are so well preserved that it seems almost next to impossible to realize that the artist and former owner are dead, and that they have been buried in the ruins for nearly two-thousand years. At this place the houses are about ten feet under the surface of the soil. The workmen exercise great care in bringing all objects of interest in as perfect a condition as possible to the surface, after which they are brought to the museum at Naples, where they are examined, classified, and deposited in their appropriate places. The Naples Museum has become a great treasure house, in which the students of ancient history for ages to come will have an opportunity to study the interesting lesson of the high civilization of remote ages.

The objects of special interest to the surgeon in this great collection of ancient art are contained in a glass case, and are properly numbered and described in the catalog. They are the

*Surgical Instruments.* These instruments were found in a house which has since been called the "Surgeon's House." They are made of bronze, and some of them show a high degree of artistic workmanship. Some of them show the destructive

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effect of heat and oxidation, while others are in a state of excellent preservation, as will be seen from the illustrations. The illustrations are taken from specimens from the Naples Museum by Domenico Monaco and E. Neville Rolfe, Naples, 1895.

A quadrivalve speculum, which is one of the most interesting and perfect specimens of the collection, is, unfortunately, not among the illustrations.

*a.* Actual cautery. Length 10 in. (Off. No. 78,034.)

*b.* Bivalve speculum working on a central pivot. Length 6 in. Width, when open, 2½ in. (Off. No. 7831.)

*c.* Scissors with a spring-like shears. Length 4 in. (Off. No. 78,005.)

*d.* A male catheter which is almost a fac-simile of the one devised by J. L. Petit in the last century. At the closed end is an eye, as in the modern instrument. Length 10½ in. (Off. No. 78,026.)

*e.* Hook. Length 6 in. (Off. No. 78,056.)

*f.* Point of injection-syringe, with eight small perforations near the distal end. The other end was, no doubt, filled with a syringe. Length 6 in. (Off. No. 78,235.)

*g.* Pompeian forceps, formed of two branches, crossing and working on a pivot. Each branch is fitted with an engine-turned handle and a spoon-shaped blade. A powerful forceps, undoubtedly used for the extraction of foreign bodies. Length 8 in. (Off. No. 8 in.)

*h.* Forceps with serrated bite. Length 4½ in. (Off. No. 78,032.)

*i.* Cupping-glass of bronze. Height 6 in., diameter 3 in. (Off. No. 77,991.)

*j.* Medicine-box with medicines, 5 x 3 in. (Off. No. 78,199.)

*k.* Spatula for mixing ointments. Length 7 in. (Off. No. 77,726.)

*l.* Lancet for bleeding. Length 5 in. (Off. No. 78,003.)

*m.* Fleam for bleeding horses. Length 5½ in. (Off. No. 78,007.)

*n.* Forceps. Length 4½ in. (Off. No. 77,982.)

*o.* Toothed dissecting-forceps with the engraved name, A. C. A. A : G. L. V. S. F. Length 7½ in. (Off. No. 77,985.)

*p.* Trocar for tapping, with a hole at the end for the escape of the fluid. Length 5 in. (Off. No. 78,008.)

*q.* Small spoon with bone handle, ending in the head of a ram. Length 5½ in. (Off. No. 78,000.)

*r.* Female catheter. Length 4 in. (Off. No. 78,027.)

*s.* Bistoury, the blade oxidized and the handle in bronze. Length 5¾ in. (Off. No. 77,637.)

*t.* Trivalve speculum, an instrument which, like the bivalve and the quadrivalve, has been much discussed by archeologists and physicians. It is composed of three valves standing at right angles to the rest of the instrument, and jointly dependent on one another in the expansion transmitted only to one of them. By turning the screw one valve is drawn nearer the operator, and this forces the other two to open in a sidelong direction. The instrument can be held by the two curved handles with the left hand, while the right hand turns the screw. Length 8¼ in.; widest expansion of the valves 1½ in. (Off. No. 78,030.)

*u.* Spatula. Length 7 in. (Off. No. 78,733)

*v.* A metallic case containing surgical instruments. Length 8 x ¾ in. (Off. No. 77,144.)

These are some of the most important instruments found in the ruins of Pompeii, and which were employed by our ancestors two-thousand years ago in the practice of surgery. I searched carefully, but without avail, for traces of needles or something else which would indicate that at that time wounds were sutured. The collection contains no saws, trephines, chisels, or any other instruments for operations upon bones. All of the instruments with the exception of the specula and catheters are diminutive in size as compared with the same instruments of less remote and modern times. The absence of saws and chisels is noteworthy, as among the agricultural instruments these tools are represented by specimens of a high degree of perfection.

In the writings of Hippocrates raspatories, mallet, and trephine are mentioned, and consequently must have been used in operations upon bones other than those of the skull. Hippocrates gives very minute directions as to the use of the trephine in the treatment of fractures of the skull: "With regard to trepanning, when there is a necessity for it, the following particulars should be known: If you have had the management of the case from the first, you must not at once saw the bone down to the meninx, for it is not proper that the membrane should be laid bare and exposed to injuries for a length of time, as in the end it may become fungous. And there is another danger if you saw the bone down to the meninx and remove it at once, lest in the act of sawing you should wound the meninx. But in trepanning, when only a very little of the bone remains to be sawed through, and the bone can be moved, you must desist from sawing, and leave the bone to fall out of itself. For to a bone not sawed through, and where a portion is left of the sawing, no mischief can happen; for the portion now left is sufficiently thin. In other respects you must conduct the treatment as may appear suitable to the wound, and in trepanning you must frequently remove the trepan, on account of the heat in the bone, and plunge it into cold water. For the trepan, being heated by running round, and heating and drying the bone,

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burns it and makes a larger piece of bone around the sawing to drop off than would otherwise do. And if you wish to saw at once down to the membrane and then remove the bone, you must also in like manner frequently take out the trepan and dip it into cold water. But if you have not charge of the treatment from the first, but undertake it from another after a time, you must saw the bone at once down to the meninx with a serrated trepan, and in doing so must frequently take out the trepan and examine with a sound, and otherwise along the track of the instrument. For the bone is much sooner sawn through, provided there be matter below it and in it, and it often happens that the bone is more superficial, especially if the wound is situated in that part of the head where the bone is rather thinner than in other places. But you must take care where you apply the trepan and see that you do so only where it appears to be particularly thick, and, having fixed the instrument there, that you frequently make examinations and endeavor by moving the bone to bring it up. Having removed it, you must apply the other suitable remedies to the wound. And if, when you have the management of the treatment from the first, you wish to saw through the bone at once and remove it from the membrane, you must in like manner examine the track of the instrument frequently with the sound, and see that it is fixed on the thickest part of the bone, and endeavor to remove the bone by moving it about. But if you use a perforator you must not penetrate to the membrane, if you operate on a case which you have had the charge of from the first, but must leave a thin scale of bone, as described in the process of sawing." As Hippocrates at one time lived and practised in Athens during a great epidemic, it appears strange that his teachings in reference to the treatment of injuries of the skull should not have reached Pompeii, as evidenced by the absence of trepans and other bone-instruments in the "House of the Surgeon."

If we judge the worth of the Pompeian surgeon from the collection of instruments he left behind him, it is evident that bloody operations were confined to bleeding, cupping, extraction of foreign bodies, and opening of abscesses. The metallic medicine-box, the spatula and spoon indicate that the surgeons of that time made free use of medicines and ointments in the treatment of injuries and disease. The instruments and implements of wood, splints, etc., were of course destroyed by fire and heat, and their absence in the collection leaves undoubtedly a large gap in the surgical resources of the Pompeian surgeon.

*Surgeon's House.* The surgeon's house does not differ from the private houses in its vicinity. It is roofless like the rest, all that remains being the bare walls. It is here that most of the surgical instruments were found. This house was undoubtedly occupied by the principal surgeon of Pompeii, who ministered to those in need of surgical aid. It is here that bleeding and cupping were practised for all kinds of ills, real and imaginary. It is difficult to imagine what transpired from day to day. That the surgeon was a busy man there can be but little doubt. Competition was then not as active and pressing as it is now, and it is therefore safe to assume that the capacious waiting-room was crowded day after day by patients anxious to be bled, cupped, or burned. These bare walls, if they could talk, could tell of many sad and exciting scenes. Fainting from loss of blood and writhing under the actual cautery, must have been frequent and familiar sights. How often the neighborhood must have been disturbed by the cries of the suffering and the shrieks of the tortured! How often the atmosphere and adjacent streets must have been stifled with the smell of burned human flesh! Let us hope that the master escaped, leaving in his haste his instruments of skill and torture as lasting mementoes of his so suddenly interrupted professional career. The house is deserted and silent now, a permanent reminder of the great antiquity of the art of surgery. If the last representative of Pompeian surgery could return to-day and behold the improvements in surgery which have been made since his time, he would indeed be astonished and amazed. What would be his surprise if he could visit one of our modern hospitals and inspect an aseptic operating-room. He would find his old occupation gone. No need now for lancet, cupping-glass, and actual cautery. He would find the science of surgery developed to a wonderful degree of perfection and its practice in consonance with its principles. He could make use of anesthesia to prevent pain, Esmarch's bandage to guard against hemorrhage, and operate under aseptic precautions to protect accidental and intentional wounds against complications the treatment of which made up a large part of the work of the ancient surgeon. He would perhaps be astonished to learn that since Pompeii was buried surgery not only came to a standstill, but retrograded for centuries, and that its present state of perfection is owing largely to the improvements and advancements made during the present century. Let us not forget, however, that our colleagues of the distant past, possessed of a primitive knowledge of anatomy, physiology, and pathology, and armed with few and imperfect instruments to practise their art, labored faithfully in the interest of suffering humanity, and unquestionably did much toward prolonging the lives and adding to the comfort and happiness of those who were intrusted to their care.

*Pompeian Surgery.* There can be but little doubt that the Pompeian surgeons practised surgery in accordance with the teachings of Hippocrates.

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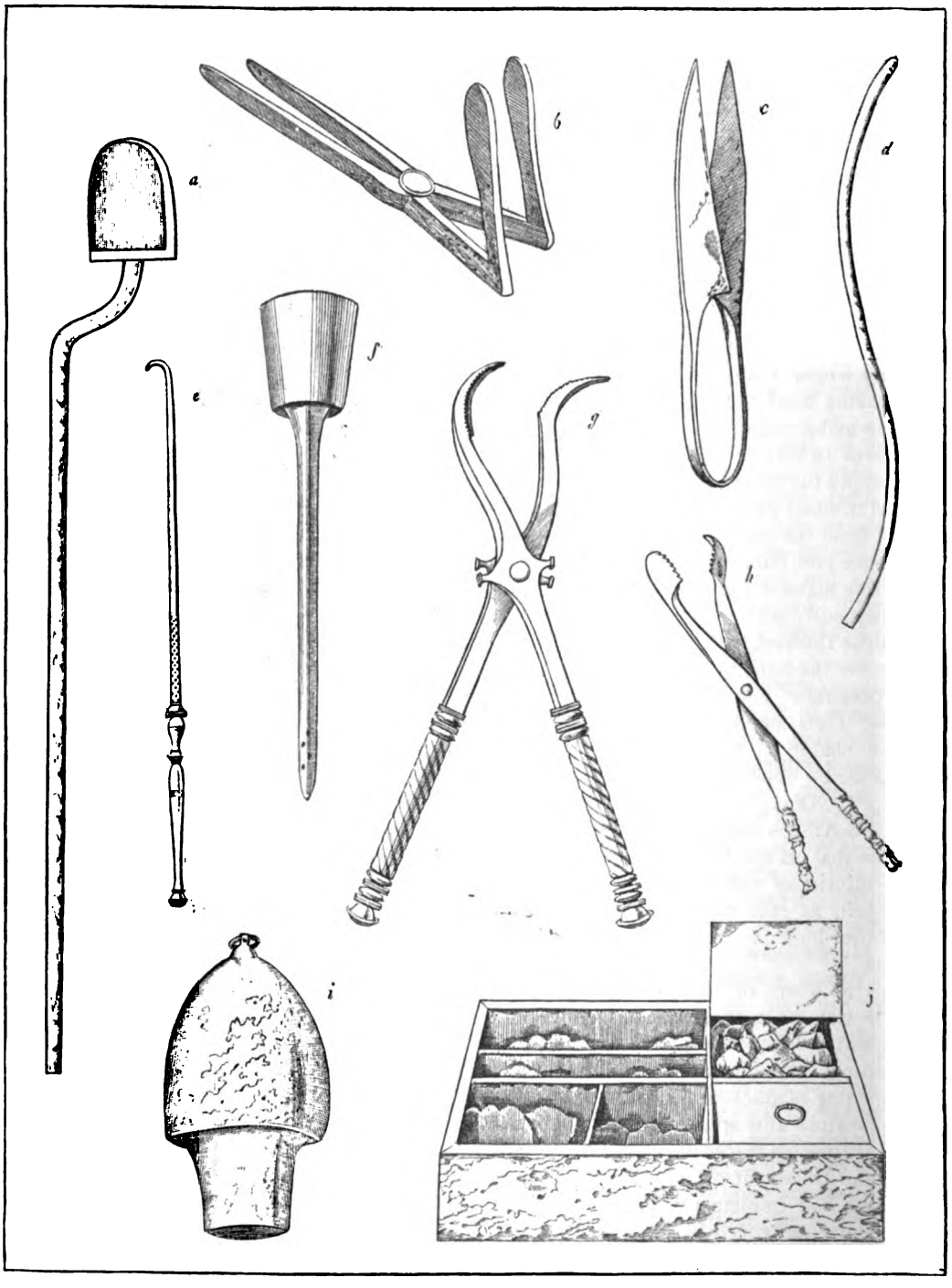
Hippocrates, who is justly entitled to be called the father of medicine, was born on the island of Cos, 450 B. C.; hence his lifework was contemporaneous with the early history of Pompeii. It is not difficult to conceive that his teachings penetrated to this city, or that some of its surgeons might have been his pupils. In all probability, Pompeian surgery was Hippocratic surgery. As has been remarked before, the instruments which have been recovered from its ruins so far seem to indicate that no major operations were performed at that time, and that the surgeon's work was limited to cupping, bleeding, the treatment of injuries, and the performance of minor operations. The discovery of a number of very ingenious specula in the "House of the Surgeon" furnishes us with positive evidence that at that time gynecology was not practised as a specialty, but constituted a legitimate part of the sur-

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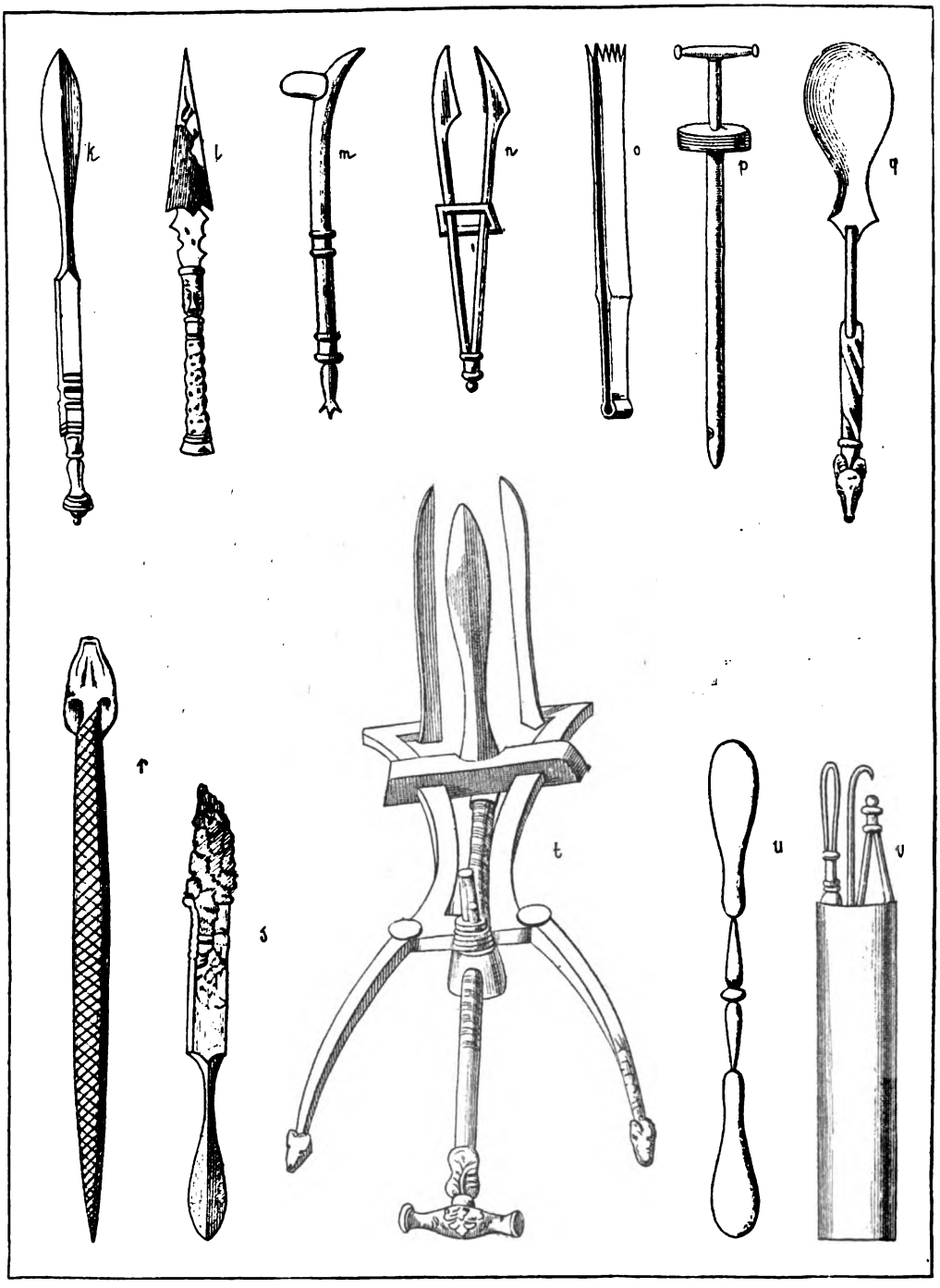
geon's work. Considering the character of the moral atmosphere of Pompeii, it is not astonishing to learn that diseases of the genito-urinary organs taxed the ingenuity and occupied much of the time and attention of its surgeons, as shown by the different kinds of specula then in use and the wonderfully perfect construction of the male and female catheter. The numerous wine-shops and houses of prostitution, private and public, that constitute such a conspicuous part of the ruins of Pompeii, stand as lasting monuments of the debauchery and licentiousness of its former inhabitants, and furnish a satisfactory explanation of the prevalence of genito-urinary diseases among males and females, and which so often necessitated the services of a surgeon. The fleam for bleeding horses found in the instrumentarium of the Pompeian surgeon goes to show that he extended his sphere of usefulness to

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the domestic animals, which furnished him with an additional field for observation and undoubtedly added materially to his income. That the surgeon of Pompeii was a man of means and good social position is amply testified to by the size and location of his house. This house is capacious, and is located in the aristocratic part of the city. A liberal income undoubtedly rewarded his labors and placed him in a position to enjoy the luxuries of life, which seems to have been the main object in life of the mass of the people at that time. The existence of a separate house occupied as a pharmacy shows that the people then, as now, had great faith in the healing powers of herbs and drugs, and the medicine-box found in the "Surgeon's House" was replenished from time to time from this source, and its contents were undoubtedly frequently made use of by the surgeon in the practice of his profession.

## CLINICAL LECTURES.

### *REMARKS ON CERTAIN POINTS RELATING TO VAGINAL HYSTERECTOMY.*

*Being two Clinical Lectures delivered at the Suffolk Dispensary, October 12 and 19, 1895.*

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LECTURE I.

GENTLEMEN: The patient that I shall examine with you to-day is a woman of 42, a housekeeper; a *virgo intacta* who has led a most regular life. Her medical history is meager; she had smallpox at the age of four, the traces of which you may remark on her face. Her genital functions have always been accomplished with regularity and *without any complication*, since the age of 13. She comes to us with the vague symptoms of a "sore feeling in the pelvis, low down," which has been present for the past five weeks only. Let me impress upon you again that no leukorrhea, hemorrhage, or discharge of any description from the genital tract has been present at any time. The nervous, digestive, and urinary systems are apparently normal.

On examination I find the external genitals in perfect condition, with a hymen having a crescent-shaped opening just admitting my index-finger. The uterus is in normal anteversion, movable and of proper size. The adnexa are in every way normal. But on the right side of the cervix I find a growth about the size of a small walnut, which is fleshy to the touch. On withdrawing my finger I notice that a little blood-stained mucus covers it.

Now what does this growth signify, and in what way can we connect the soreness in the pelvis with the neoplasm on the cervix? I believe, and many similar cases which I have seen and operated on go to bear out this statement, that we are in presence of a carcinoma at its début, and my fears are still more increased from the fact that the patient's mother was afflicted with a malignant tumor of the breast from which she afterward died.

The soreness in the pelvis is probably due to an infiltration of the corpus uteri, the increase in the weight of which pulls on the broad ligaments, although the organ is not enlarged; at least palpation does not show this. The uterus is movable, the vaginal walls normal; consequently the disease is limited to the organ; the bowels are regular, and stools painless and free from pus or blood, showing that there is no metastasis in the rectum. In other words, we have here a case in which a radical operation will be crowned with success, and this operation is vaginal hysterectomy. I shall perform this operation before some of you next Wednesday at the hospital, as the patient has wisely consented to it.

Vaginal hysterectomy was first successfully carried out by the illustrious Récamier in 1829, and of late years has been revived by Péan, Segond, Richelot, Poucel, and other French surgeons. The Germans are also copying after the French and are having good results.

As the operation is commencing to be appreciated and performed in this country, and as I shall probably have the occasion to perform the operation before you quite often this winter, I would like to make a few remarks regarding certain points in this operation which are not to be found in the text-books, but which have a real importance. In the first place, let me speak of some of the indications and contraindications for its performance.

Generally speaking, this operation should never be resorted to in recent puerperal infections, in which case it is better to drain the pus either by the vagina or by the suprapubic region. The reason for this resides in the great softness of the uterus, which is one of the most serious complications met in vaginal hysterectomy, and this friability of the tissues attains the highest degree immediately after labor. All the pelvic tissues are in the same condition, and will tear and crush under the pressure of the clamps. Under these circumstances hysterectomy becomes a very difficult and dangerous operation, and will only be completed after serious tears have been made in the surrounding viscera. The prognosis is most bad.

I wish to emphatically state that vaginal hysterectomy will not cure *prolapsus uteri*, and in this opinion I do not stand alone, as Prof. Poucel, of Montpellier, Bouilly, and Richelot are of the same opinion. The latter expresses himself as follows: "The extirpation that I performed for a prolapsus showed me what I already suspected, viz., the relative ease and simplicity of the operation in cases of this kind; secondly, the possibility of a secondary prolapsus of the vaginal walls after extirpation, and consequently to consider the operation as a preliminary one." And further on the same author says: "If the prolapsus is simple, if the uterus is small, if the exuberance and flaccidity of the walls are not great, a well-performed colporrhaphy is the treatment *par excellence*. If there be doubt as to the success of a vaginal anaplasty on account of excessive relaxation of the tissues, if the uterus is large, if the hypertrophy of the cervix leads one to believe that the size and weight of the organ might interfere with reunion or favor a relapse, auxiliary means may be resorted to, the anaplasty remaining the base of the treatment."

The clinical signs of uterine carcinoma, that of the cervix, and still more that of the corpus, are more diffi-

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cult of recognition than would be supposed. The pains experienced on the internal aspect of the thighs, the induration, hemorrhages, fetid discharges, are not pathognomonic of this disease even if they should all be present in the same patient. You may meet all these symptoms in cases of cervical metritis, with ulcerations, but this affection is not carcinoma, although, let me add, it certainly prepares the ground for a malignant growth more or less rapidly.

Now, gentlemen, it is precisely in these cases that an early vaginal hysterectomy gives wonderful results. These patients, who are sometimes prematurely in a state of cachexia as much from mental as from physical suffering, come back to good health with surprising rapidity after the operation.

In advanced carcinoma one of the greatest operative difficulties is caused by the invasion of the adnexa by the neoplasm, as well as from the slight cohesion of the uterine tissue, which in some cases is so very advanced that the cervix will tear away from the corpus when the former is seized and drawn down with the forceps. In these cases the operation is in no way justifiable, as a recurrence of the disease is sure to soon appear, but the thorough use of the curet is decidedly indicated and will go far in relieving the patient's sufferings.

But when the neoplasm is limited to the cervix and has not invaded the vaginal mucous membrane, the operation should be performed, with splendid results.

Another class of cases, few in number, it is true, requiring vaginal hysterectomy are those suffering from hemorrhagic metritis; but only when the patient is in a state of anemia due to prolonged hemorrhages which have resisted all other minor treatment, such as curettement, cauterization of the endometrium with a Paquelin, should this operation be resorted to.

As to fibroids, we have two classes: those having an abdominal and those a pelvic evolution. Those of the first class, unless they are small, are better treated, I believe, by the abdominal route. If it is decided to remove the uterus through the vagina, one will find that the operation will be greatly facilitated by an anterior hemisection. If the fibroid is in the pelvis, two alternatives present themselves. The neoplasm either projects into the uterine cavity and dilates the cervix or it grows up toward the broad ligaments. In the first variety one will easily remove the uterus by morcellement through the vagina; but, in the second, a selection between the abdominal and vaginal methods must be made, and which should be based on the mortality or the wedging in of the growth in the pelvis.

If you have to do with multiple fibroids, and if you are able to detect that they are scattered through the broad ligaments, I should advise the abdominal route, because the application of the clamps will be found very difficult.

There is a relatively frequent affection, and one most embarrassing for the surgeon to treat, on account of its benign nature, on the one hand, and, on the other, the gravity of the operation necessary for its cure. This affection is what I term microcystic degeneration of the ovary. This lesion is the cause of severe and always increasing pain. Usually only one ovary is the seat of this pathologic condition in the beginning, but soon the other organ becomes degenerated in the same manner. Now, when both ovaries are involved, vaginal hysterectomy is indicated, and when performed will give the patient rapid and complete recovery. When you have decided to perform a vaginal hysterectomy, and the reasons for the operation are considered sufficient, the qnestion comes, At what time can and should this be performed? Of course, if the poor general health of your patient is the result of the lesion, there should be no hesitation on your part, for by putting the operation off until later you diminish the chance of success. But if the general condition depends on some intercurrent acute disease, you naturally should wait until all the symptoms have disappeared and then put your patient on tonic treatment before operating.

Scrofula and commencing tuberculosis are not contraindications for the performance of vaginal hysterectomy, for, as Ferrier remarks, it is only superficial wounds, involving the skin alone, that take on an abnormal evolution in these subjects. Deep wounds, on the contrary, heal normally.

It has been upheld by some surgeons that a surgical operation may cause an acceleration in the progress of a beginning tuberculosis, even inducing its development, particularly in the form of meningitis. I believe from certain cases that I have observed that this may be true of tuberculous lesions of the bones, but, when the general health of the patient is not too poor, I certainly think that no danger will result from the removal of the genital organs through the vagina.

As to syphilis, if it is considered as a diathesis, which is certainly the case in the congenital form, or as an intoxication, as the acquired form has the right to be considered, I think it well that every syphilitic patient who is to undergo a vaginal hysterectomy should be put on specific treatment *before and after* the operation. You will thus avoid secondary hemorrhage and the tenacious neuralgias that occur early or late after a surgical traumatism inflicted on syphilitics.

Malaria of any notable gravity is very infrequent in this part of the country; still, as some of you may hereafter practice in places where this disease is frequent, I will say a few words regarding it. A patient suffering from this affection should be given quinin in full doses, combined with strychnin and arsenic before and after operation, because malaria may produce local or general complications. For the first you have pain and hemorrhage; for the second, a simple intermittent, remittent, or even pernicious fever. In the period of malarial cachexia, erysipelas, gangrene, septicemia, or pyemia might be set up in spite of the most careful asepsis; consequently you would do better to put off the operation until the general condition of the patient is improved.

You have heard me often insist upon the absolute necessity of making a urinalysis in all cases demanding a surgical operation. The smallest wound may be the cause of death in diabetes; a pin-prick, removal of a corn, the extirpation of a chancroid of the face, may be followed by phlegmonous erysipelas or gangrene, soon resulting in death. I think, therefore, that diabetes is a contraindication for vaginal hysterectomy, or at least temporarily so; a considerable reduction in the amount of sugar must be obtained by well-directed treatment before performing this operation. There are, however, two classes of diabetic patients from the surgical point of view—firstly, those in whom a surgical traumatism will result in gangrene, and, secondly, those patients that are in no way influenced in their recovery by their dia-



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betes. Those of the first class offer an excellent culture-ground for staphylococci and streptococci, although the result of their urinalysis in no way differs from that of the second class of diabetics who can undergo surgical interference without disaster.

It is, however, a safe rule never to perform vaginal hysterectomy on a diabetic subject, for you cannot tell beforehand to which class the patient may belong.

If you are in the presence of albuminuria, remember that any traumatism will increase it. The different renal diseases render the prognosis of a surgical operation more serious in direct proportion to their own degree of severity. Parenchymatous nephritis and amyloid degeneration are of far greater import than sclerosis. Bilateral hydronephrosis is, of course, more serious than when only one organ is the seat of the trouble, but even the latter condition renders the prognosis far from good. I would advise you to leave your patient alone if she presents any organic disease of the kidneys, as an operation of the importance of vaginal hysterectomy will in no manner improve her condition.

Among the diseases of the blood I wish only to speak of hemophilia as having any direct bearing on the operation under consideration. In subjects afflicted with this diathesis, primary and secondary hemorrhages are to be feared. The last mentioned are the most to be dreaded, and are more frequent than primary hemorrhage. They may occur when cicatrization is about complete. Hemophilia is a contraindication for vaginal hysterectomy, unless you have the time to build your patient up in order to forestand the shock. This is accomplished by subcutaneous injections of ergotin and artificial serum. Sulphuric acid in the form of a drink is highly recommended by Salvy as giving excellent results.

Pulmonary diseases, as bronchitis, influenza, etc., even when slight, may cause coughing-spells, which are very bad after vaginal hysterectomy; so that it is better to postpone the operation until the bronchial mucous membrane is less irritable. The only disease of the liver which concerns us as gynecologists is biliary lithiasis and congestion of the liver. The coexistence of the former affection with lesions of the uterus and adnexa is much more frequent than is usually supposed, and I wish here to call your attention to certain facts which have been put forth by Prof. Poucel, of Montpellier, as they are not generally known, and are certainly worthy of serious consideration.

The liver in a state of congestion compresses the vena cava, and in this way mechanically acts on the general circulation. We can thus explain the uteroovarian congestions nearly always present, and which predispose the patient to hemorrhages; acute metritis, with all its consequences; ulcerations, versions, degenerations of various types, congestive hypertrophy, catarrh of the uterus, with shedding of the ciliated epithelium, which latter is considered by Poucel as the most common cause of sterility. This chronic uteroovarian congestion is still better explained by the anastomoses existing between the veins of the cervix and the internal hemorrhoidal; it is the usual cause of abortion by apoplexy of the placenta, the same as hepatorenal congestion is the cause of puerperal albuminuria and eclampsia. Now, if these hepatic troubles are overlooked, the surgeon will often find that the pains which were thought to be due to lesions of the adnexa persist, even after the nicest operation, and it is for this reason that I wished to call your attention to this theory, which certainly is based on much observation.

Another important question to be considered is that of menstruation. If your patient has passed the menopause, any day will do for the performance of vaginal hysterectomy. But if the woman is still having her menses, the operation should *never* be performed during the menstrual period unless the case should be an urgent one, for instance, with an enormous quantity of pus and a generally bad state of health, in which case an immediate operation may have an excellent effect. However, if there is no urgent symptom, you should perform the operation about forty-eight hours after the menses have ceased. Otherwise your patient will be exposed to severe and obstinate hemorrhage. The studies of Cauchois and Louge on the pulse during menstruation have conclusively demonstrated that the increase of tension in the circulation is a constant phenomenon attending the menstrual periods. If this operation is performed two or three days before the menses, the vaginal incision will bleed very freely, and hemostasis is more difficult to obtain. The blood, moreover, appears more watery, and the uterus, too, bleeds to a far greater extent. But it is especially on removal of the clamps that the bleeding becomes serious, and may even necessitate a complete tamponade. Consequently, if you do this operation, do not forget to wait until menses are over, if they are near at hand.

A few words now regarding the instruments necessary and the preparation of the patient.

The instruments that are necessary are: two long and two short valves, four pairs of hysterectomy-forceps, 6 long clamps, 6 short clamps, 4 Segond's ligament-clamps, one pair each of stout curved and straight scissors, 6 pairs of long, thin clamps with *gold-washed* handles for tampons, and on the absolute necessity of these latter I particularly insist, as they save an enormous amount of time, to say nothing of trouble; and, lastly, a straight knife mounted on a long handle, Segond's curved knives for "*conoid excision*," and a Garceau's hooked sound-director, a most useful instrument which I have employed with the greatest satisfaction.

The number of tampons, which should be made of *gauze*, is as follows: 6 tampons 5 x 5 inches for pressing back the intestine, and 40 gauze tampons 3 x 3 inches for removing blood, etc., and keeping the field of operation clean, a most essential thing, because in vaginal hysterectomy you should see every organ and tissue before proceeding.

The tampons are then sterilized by dry heat at 100°C.

The sutures that I employ for this and every operation are of *silk*. The simplest way of rendering them perfectly sterile is to boil them for one hour in a 1 : 2000 mercuric-chlorid solution and *in the glass test-tube in which the spools are to be kept.* The spools are, as a matter of course, of glass.

You also must have two strips of a 5 per cent. sterile iodoform-gauze, each contained in a separate test-tube and measuring each 6 inches wide by 4 feet in length. These strips are used for packing the vagina after the operation.

The preparation of the patient is a very important and much-neglected point, and, with the exception of those urgent cases to which I have already alluded, should be

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carried out as follows: I begin one week before the day of operation to put the patient on a light and easily digestible diet. The bowels are moved every day by means of a wineglassful of Carabaña water, taken just before breakfast. This particular water is, *par excellence*, the one that should be employed, as it acts on the entire digestive system in a most admirable manner and is, consequently, well suited for the preparation of a patient who is to undergo a vaginal hysterectomy.

Besides this, I am decidedly of the opinion that intestinal antisepsis is strongly indicated, and for this purpose I prescribe 20 cgm. of naphtol $\beta$ in a cachet, one to be taken after each meal. If the patient is nervous, and she generally is with good reason, I would recommend the exhibition of strychnin, 5 mgm. before each meal. Another combination that I often employ for this class of cases is as follows:

| | |
|---|---|
| ℞.—Strychninæ sulph. . . . | 0.05 |
| Tinct. valerian. . . . . | 40.00 |
| Syr. rubi idæi . . . . | 50.00 |
| Aq. dest. . . . . | 70.00 |

M. S. — A tablespoonful to be taken after each meal.

A vaginal irrigation with two liters of a 1 per cent. solution of sulphonaphtol or of creolin as well as a hot bath should be given once a day for the four days preceding the operation.

On the evening before operation the pubis is shaven, a sublimate-bath given (3 grams of mercuric chlorid to the bath), and a 1 : 1000 sublimate-compress is placed over the abdomen and vulva and the patient put to bed.

At six the next morning the patient is given a cup of hot coffee and two tablespoonfuls of cognac, and an injection of 1 cgm. of morphin combined with half a mgm. of atropin is given subcutaneously a quarter of an hour before beginning the narcosis.

I will not insist on the asepsis of the instruments, hands, field of operation, etc., as they are the same as for any major or minor operation. In other words, they must be perfect. In the next lecture I shall speak of the technic of vaginal hysterectomy, the accidents that may occur during its execution, and, lastly, the ultimate results.

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## LECTURE II.

GENTLEMEN: It is difficult to state precisely the average time that will be necessary for performing a vaginal hysterectomy, for it depends on two principal factors—on the one hand are the operative difficulties, on the other the acquired skill for performing this operation. There are often unforeseen circumstances rendering the operation more difficult to perform than was expected.

So soon as everything is ready for the operation the anesthetic is given. The room in which the operation is to be done should be kept at a temperature of about 78° F., thus avoiding any chilling of the patient. The woman is placed in the lithotomy-position. The operator should be seated on a low chair, so that the light may be good all over the field of operation. As you must see, a good light is absolutely necessary, for you are working in a cavity, so to speak.

I now come to the important question of the assistants, of whom there are *two*, not including the one giving the anesthetic. In the first place, let me speak of the assistant on the right of the patient. He should be seated near the flank of the patient, on a high chair or stand, if he so prefers, but when seated he can remain immovable, and bend easier when necessary. His left arm passes above and the right below the patient's thigh, his chief duty being to handle the upper and lower valves, keeping them constantly parallel, and pushing them more deeply into the vagina when necessary. If the patient should make an effort at defecation, as will sometimes occur, the assistant on the right should press the lower valve downward, sufficiently to prevent the fecal matter from escaping. During the clamping of the *left* ligament (of the patient) this assistant will make this easier by drawing the uterus outward to his side. When the clamps are placed on the *right* ligament (his side), he should watch to see that the labia majora and minora, as well as the vaginal walls, are not included in the clamps. When the ligament on his side is cut, he should hold the clamps parallel to the axis of the vagina, but without drawing on them, and by holding them between the thumb and first finger he will not occlude the light. When you wind the gauze around the clamps, after packing the vagina, this assistant should hold the labia apart.

I now come to the assistant on the left (of the patient). He should stand by the side of the patient, and if the vaginal arteries must be ligated it is his duty to catch them up and cut the ligatures for the surgeon. If there is any need of pressing the abdominal walls, for instance, for pushing down the uterus, a fibroid, or the adnexa, or to prevent the escape of pus into the pelvis after accidental rupture, or a pyosalpinx, he should exercise this pressure delicately and according to the directions of the surgeon. He should also have charge of the tampons, and keep the field of operation perfectly dry. His other duties will be similar to those of the other assistant, as well as to hold the lateral valve on his side.

There are four methods of performing vaginal hysterectomy: 1. Péan's operation, or hysterectomy by morcellement; 2. Segond's, by central conoid excision, or hemisection. This method is nothing else than morcellement, but differs from that of Péan in that hemostasis, excepting for the uterine arteries, is consecutive instead of preventive. The advantage of this method is that when terminating the operation you are not hindered by clamps; the only ones in place are those placed at the beginning of the operation on the uterine arteries. 3. The method of Müller-Quénu. Müller advised cutting the uterus vertically into two halves after having turned it out, or simply drawing it down. Quénu then took up Müller's ideas and made the operative technic methodic by incising the uterus little by little until hemisection is complete. This is an excellent method, and most serviceable in certain cases in which the uterus adheres to the bladder or rectum, or when the organ is prevented coming down by cystic ovaries or pyosalpinx. 4. The last method, due to Doyen, is that of anterior hemisection, but the details of which I will pass by. I will now describe to you the various stages of vaginal hysterectomy as it usually occurs.

The *first stage* is the *drawing down* of the uterus. If the cervix is conic you should grasp it with a pair of hysterectomy-forceps; but if, on the contrary, it is large

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you will do well to catch it with two pairs, one of which is placed on the anterior, the other on the posterior lip; by this means you will obtain a better hold on the organ and will not be so likely to wound it. I think that it is well to curet the endometrium, thus removing any possible source of infection from within, after which the cavity is packed with iodoform-gauze. As this little preliminary operation requires about three minutes, I think the time well spent. Or you may simply cauterize the endometrium with a Paquelin and pack with gauze, as is recommended by Poucel.

The *second stage* of the operation is the incision of the vagina. The labiæ and fourchet having been widely separated by the valves held by the assistant on the right, and the cervix finally caught by the forceps, you give the cervix a movement of rotation from left to right so that the knife will pass over the right side of the cervix round to the posterior aspect; the same rotation is then made from right to left, thus completing the circular incision. Segond's lateral incisions over the broad ligaments are next made and should measure about one centimeter in length. I cannot insist too strongly on the necessity of these lateral incisions, as the operating space gained by them is enormous.

The circular incision should be made *as near the os uteri as is possible*, for by so doing there is less danger of nicking the ureters.

If there be much bleeding from the vessels of the mucous membrane it is well to catch them up and ligate them. There are usually four of these small arteries, and if they bleed much they will be a bother during the remainder of the operation.

The *third stage* of the operation consists in freeing the uterus. When the organ is not adherent you should remove it without hemisection or morcellement, for in this way you will diminish the chances of infection. There is no absolute rule for rotating the uterus when this is necessary, because some organs will come down more easily from above, while others will be more readily turned out through the posterior culdesac. When the cellular tissue uniting the bladder to the uterus is very resistant you should employ the curved scissors, because if you use your finger there is more danger of perforating the bladder. You will do the same, if from a perimetritis there are adhesions between the rectum and the uterus.

After you have freed the anterior and posterior aspects of the uterus for about four or five centimeters, and as much as possible before you open the peritoneum, you should place the lower clamps on the broad ligaments. You should use the long clamps for this, so that at least 4 cm. of ligament are caught up. The clamps should be placed at about 1 cm. from the uterus, and as well-made clamps are about 7 mm. broad it follows that, under these circumstances, you run no risk of including the ureter in the jaws of the clamps, because the ureters are at least 2½ cm. from the uterus. The first clamp should not be placed blindly. The first two fingers are inserted behind the broad ligament and act as a guide for the clamp.

You then cut the ligament *up to the end of the clamp*, and then the uterus will gradually come down in a remarkable manner. After this you draw down the uterus and open the culdesac. If the uterus is low enough to allow the first finger to hook the upper part of the broad ligament you place a short clamp from below upward, or from above downward, according to circumstances. The clamp will include in its grasp the uterine artery, the tube, and the ovarian ligament. If this clamp cannot be put on, you should ascertain if the uterus can be tipped forward, which is generally the case, or backward, and if one or the other is accomplished the instrument can be applied.

When the uterus will not descend, then you should perform either anterior hemisection or total median section or morcellement.

Anterior hemisection or total section will soon be master of the situation, and I can assure you that it is the greatest surprise to see how quickly the organ comes down after one of these maneuvers has been executed. And let me add that these sections are absolutely devoid of danger from hemorrhage.

The *fourth and last stage* of vaginal hysterectomy is the extirpation of the adnexa. When the tubes and ovaries are not adherent, delicate and firm traction should be employed. But if they resist, you should separate them with the greatest possible prudence. If they contain pus you must introduce tampons about them, so that these may receive the infectious material as fast as it runs out; and let me say that it is very difficult to detach a pyosalpinx without rupturing the sac.

Now if you find that the adhesions to the surrounding parts are very strong, especially if they are connected with the intestine, I would advise you to stop and go no further, and leave part of the pus-sac, after emptying all the pus, and excising as much of the nonadherent part as is possible.

After you once get the adnexa down you can then place a clamp on the upper part of the broad ligament, and the pedicle of the ovary and tube. When this is accomplished you separate the clamps into two clusters, those applied to the right and those to the left side. Then carefully look to see if hemostasis is complete, in which case you proceed as follows:

With a long forceps you pick up the end of one of the strips of iodoform-gauze, and carry this well above the ends of the clamps, in order to protect and support the intestine; then you pack in the rest of the strip not too tightly in the vagina. This gauze serves a double purpose; firstly, to prevent hemorrhage, and, secondly, to support the intestine. The second strip of gauze is then introduced in such a manner as to protect the vaginal walls from the contact of the clamps, as well as to prevent direct compression of the vulva. The clamps are then dressed in carbolized gauze, over which a sterilized napkin is placed, and the dressing is completed by a T-bandage.

I believe that I have omitted mentioning one particularly important point, and that is the emptying of the bladder just before beginning the operation, and again as soon as this is completed. Do not forget to do this.

I now come to the question of the after-treatment. The patient should be carefully transported to her bed, and placed with the head low, while a pillow is placed under the popliteal spaces in order to keep the thighs elevated and the legs flexed. A couple of soft towels are massed together and put under the clamps in order to support them.

I never employ a permanent catheter as some operators do, but have my patients sounded every eight hours

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during the first day, and every six on the following days until the patient passes her water herself, which can generally be done as soon as the clamps are removed; in other words, after the first 48 hours.

A very good practice is that of Segond, who has an ice-bag placed on the patient's abdomen and kept there permanently for a few days. This is done not so much for the prevention of peritonitis as for its calming effect on the colic which you will often encounter in patients after this operation. I can recommend this practice, as it has done me good service, in controlling not only the colic, but reflex vomiting as well.

As to the feeding of the patient: You should only allow champagne and cracked ice for the first 24 hours, to allay the thirst. During the next two days continue the champagne and give bouillon, either cold or hot, according to the patient's desire.

The clamps are removed 48 hours after the operation, while the gauze should be removed on the fifth or sixth day. On the morning of the third day I order Rochelle powder, and when the bowels have moved I put the patient on milk and lime-water, equal parts, good claret, beef-juice, and light soup, I never allow solids in any form until the sixth day, and then a chop and dry bread may be given.

Six hours after the gauze is removed, an irrigation with a 1 per cent. solution of phenol is given, and should be continued once daily until all discharge has stopped. This usually is over by the fifteenth day, or in pus-cases by the twenty-first day.

I allow my patients to sit up in bed on the fourth or fifth day, and usually have them out of bed by the twelfth or fifteenth day after the operation, excepting in pus-cases and fibroid cases.

Now what is to be done if there should be a hemorrhage when you remove the clamps?

If it is slight, an oozing for example, do not under any circumstances try to apply a clamp. A vaginal gauze-packing is all that is necessary to control the bleeding.

But when the hemorrhage is severe, insert a Sims speculum, the patient being placed in the knee-chest position, as this insures plenty of light, and with mounted tampons you must endeavor to find the bleeding vessel, and, when this is found, place a clamp upon it, taking all necessary time, and, above all, do not work in the dark, as you will surely clamp some important organ along with this vessel if you do it blindly.

Sexual relations must not be begun until two months after the operation.

Regarding operative accidents: Even with the best operative care small vesical perforations may occur, even as late as eight or ten days after the operation. They probably are the result of the coming away of slough; but in all probability they are not due to pressure from the clamps, because Martin, of Berlin, who only employs ligatures, says that he has seen these small fistulæ appear during the first month. They get well of themselves, as a general thing. But if the fistula does not become obliterated it may be operated on; however, as Richelôt says, you should wait a little, firstly, because of its spontaneous closing up; and, secondly, on account of a too hasty operation.

Wounding the ureter during vaginal hysterectomy is exceedingly infrequent and will not occur if you will follow strictly what I have said regarding the vaginal incision and the application of the clamps. Among 400 vaginal hysterectomies performed for various lesions by Segond, the ureter was never wounded. Among 105 hysterectomies performed by Prof. Poucel, of Montpellier, only one case of uretero-vaginal fistula was observed, and this was greatly diminished by slight cauterizations with a Paquelin. In 139 more vaginal hysterectomies reported by Lafourcade, collected from the practice of various surgeons, the ureter was not injured in any case.

If your clamps are well made and tempered the chance of hemorrhage is very slight, if you will bear in mind what I said in the first lecture regarding the menses and general diseases.

I believe that in abdominal hysterectomy the intestine is wounded more frequently than in the operation under consideration. Poucel and Segond had only two cases out of a total of 405 vaginal hysterectomies in which the intestine was wounded, both occurring in the latter surgeon's practice.

Intestinal occlusion after vaginal hysterectomy is infrequent, and I am aware of only nine cases, one reported by Baudron and eight collected by Ashton. This accident was produced by the adhesions formed between the intestine and the borders of the vagina. The treatment is the formation of an artificial anus.

In debilitated subjects the sloughs always extend further than the tissue included in the grasp of the clamps, and this fact you must bear in mind when operating on weak patients, and apply the clamps *close to the uterus*, in order to prevent the slough reaching the ureter, then cut into the parenchyma of the organ when you divide the tissues.

Tuffier believes that utero-vaginal fistulæ are more often on the right side, and this is explained by Fournel by the fact that it is more difficult to apply the clamps to this side, because the separation of the uterus from the bladder is harder to accomplish and is usually incomplete.

Segond, Richelôt, and others believe that rectal fistulæ are due to the falling off of the sloughs.

One word more and I have finished. After vaginal hysterectomy the patients will, for a few months, complain of various troubles at the time of their menses. There are migraine, flushings, and, rarely, congestion of the breasts or liver, tinnitus aurium, etc. One of my patients was troubled by pain at each menstrual period for several months; the pain was seated in the place where her right ovary had been, was dull and lasted for three days each time, but this symptom subsided and she has been free from it now for some months.

Of course I have not covered the subject of vaginal hysterectomy in these two lectures; far from it. It has simply been my intention to mention some points on the subject that are not generally known or understood. Many other important questions relating to this splendid operation will come up for consideration before you this winter, and these remarks are simply intended as an introduction to the subject of removal of the genital organs by the vaginal route.

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***The College and Clinical Record*** will be hereafter known under the name of *Dunglison's College and Clinical Record*. A Monthly Journal of Practical Medicine.

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# MEDICAL PROGRESS.

***Hysterical Vomiting in a Child.***—WOOD (*Australian Medical Journal*, vol. xvii, No. 10, p. 460) has reported the case of a girl, ten years old, who during convalescence from an attack of typhoid fever, at the age of seven years, began to vomit after taking food, and had so continued to do with varying intervals. Immediately after the swallowing of food there was complaint of pain passing through the chest from front to back. The patient would then cry and refuse to swallow any more; in a few minutes the pain would abate, and she would resume eating. If the patient vomited during the existence of the pain, this would at once disappear. On one occasion she spent a fortnight with a medical friend, who insisted on her sitting at the table and eating everything put before her, and under this treatment she improved very much, but a return home was followed by renewal of the disorder. The child was extremely emaciated, but presented no evidence of organic disease. On admission to the Children's Hospital she ate and drank everything for twenty-four hours without vomiting, but on the next day she began to vomit. The food was retained for about eight minutes; the child's face assumed a pained, nervous expression during its retention; then vomiting occurred. Everything that had been swallowed was returned in one gulp, and no retching followed. On applying the ear over the stomach the sound of fluid falling into the stomach heard normally could not be detected. A few days later a bougie was passed into the esophagus, and a slight obstruction encountered at the cardiac orifice of the stomach. This yielded easily, and on repassing the bougie a minute later it could not be discerned. For the succeeding three days the child ate everything with greediness; no vomiting occurred, and the bowels acted naturally, although enemata had been used constantly during the previous two years. The vomiting returned from time to time, but was checked temporarily by the passage of the bougie. There was considerable gain in weight. The child returned to her friends, but failed to retain her weight, suffering from dysphagia, but not from actual vomiting. Later she was sent to a private hospital, where she once more improved. Afterward she was placed in a school away from home, and while much better she still had difficulty in eating in the presence of strangers. A peculiar symptom developed during this time—the occurrence of cough in the recumbent posture. A large amount of frothy mucus would collect in the pharynx, through which the air passed noisily in and out. At the expulsion of the fluid relief occurred, but the series of events was many times repeated.

***Pylephlebitis and Abscess of the Liver Consecutive to Typhoid Fever.***—LANNOIS (*Revue de Médecine*, 1895, No. 11, p. 909) reports a case of typhoid fever in the sequence of which there developed pylephlebitis and multiple abscesses of the liver, in the pus of which typhoid-bacilli were found. From a study of this case and of the literature upon the subject, he concludes that the complication is an exceedingly rare one. From the pathologic point of view three varieties of abscess of this kind are to be recognized: (*a*) metastatic, the abscess originating from a focus of suppuration in some distant part of the body, especially in the subcutaneous tissue; (*b*) from typhoid ulceration of the biliary passages; (*c*) in consequence of pylephlebitis, secondary to the intestinal lesion.

***Landry's Paralysis, with Recovery.***—BEHREND (*Deutsche medicin. Wochenschrift*, 1895, No. 47, p. 774) points out the differences in view that exist as to the nature of so-called Landry's paralysis, and reports a case of bulbar type terminating in recovery. This occurred in a man, thirty-seven years old, who, a day after drinking a pint and a half of rum, noted a peculiar feeling of coldness in the mouth and throat as if he had swallowed ice, together with a sense of numbness referred to the chin and neck. In the course of two or three days paralysis developed successively in the legs, trunk, and arms, with difficulty in swallowing and disturbance of speech. The nutrition was preserved, the temperature was normal, and the sensorium was clear. The pupils were equal and reacted sluggishly. There was diplopia due to paresis of both abducens muscles. Accommodation was not affected and the eye-grounds were normal. Hearing also was not deranged. In the cutaneous area between the lower lip and the hyoid bone sensibility was impaired. The expression was somewhat fixed in the distribution of the facial nerve, and the naso-labial folds were but feebly defined. The patient was unable to whistle. The tongue was protruded in the median line. There was some difficulty in chewing, and fluids drunk returned through the nose, a portion entering the larynx. The palatine velum was paretic. Pressure upon the spinal column and upon the nerve-trunks was unattended with pain. The knee-jerks could not be elicited. The electric irritability of the paralyzed muscles was preserved throughout. The sphincters were not involved. The spleen was not enlarged, and the remaining viscera presented no abnormality. The condition of the patient grew progressively worse and a fatal issue was feared; but, finally, improvement set in, and in the course of two months advanced to ultimate recovery. Treatment included warm baths, injections of strychnin and of camphor, and feeble induced currents.

***Precocious Puberty.***—At a recent meeting of the Clinical Society of London, CAMPBELL (*Medical Press and Circular*, No. 2591, p. 551) showed a lad, fourteen years of age, who had been under observation for upward of ten years. When only fifteen months old the mother had noticed that hair was beginning to grow on the pubes and that the external genitals were abnormally large; at two years of age they were fully developed and had not materially changed in the following years. The boy had at times manifested great sexual excitement. Between four and seven years of age he had frequent discharges of seminal fluid, but it had not been determined that this had contained spermatozoa. The muscular development was remarkable, the child having the muscles of a man of twenty-five or thirty. He had been in the habit of being shaved for several year. His education was defective from failure to attend school.

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SATURDAY, DECEMBER 28, 1895.


## A FAREWELL WORD.

WITH this number THE MEDICAL NEWS leaves Philadelphia and passes out of its present editorial control. On January 1st, for business-reasons, the publishers will transfer the publication and editorial offices to New York City. The address of Dr. J. Riddle Goffe, the incoming editor, is Constable Building, Fifth Avenue and Eighteenth Street, New York City, to whom all editorial communications should henceforth be addressed.[1]

In severing relations with his contributors and collaborators the retiring editor deeply regrets the necessity of doing so, because whatever of unpleasantness and labor the office may have brought to him it has been the means of bringing a much larger share of things good beyond valuing—the friendship and sympathy, for example, of many noble men, and a clearer comprehension of the real dignity and loyalty of the great medical profession. There may be added the satisfaction of the consciousness of having striven faithfully to administer the trust for the benefit of scientific and ethical medicine. Hundreds of cordial letters received attest a certain measure of success in realizing this ideal, and no reply can adequately express the sense of gratitude felt for numberless courtesies and kindnesses spontaneously extended.

[1] The address of Dr. Gould is 119 South Seventeenth Street, Philadelphia.

## SOME CAUSES OF NEURASTHENIA HITHERTO LITTLE DISCUSSED.

THERE are causes—and important ones—of some of the graver forms of neurasthenia that deserve more than the passing attention hitherto vouchsafed them. Without attributing to these causes more than their just importance, we are inclined to believe that those that we may describe as the conditions of a faulty education—conditions that we shall presently attempt to particularize—exert a considerable influence in disturbing the equilibrium of the nervous system, in altering the "*Gemeingefühl*," or mental perspective in which the patient views himself and the accidents that affect his thoughts, feelings, movements; which alteration in the primary functions of the understanding is a fundamental condition of the graver forms of neurasthenia, *e. g.*, the "*folie du doute*," the *delire du toucher*, the phobias; in a word, all the curious obsessions met in these strange maladies.

The fact, for instance, that a careless habit, once formed and persisted in, such as negligence in dressing, washing the person, in correspondence, in duties of the household, such as turning off the gas, putting a lighted match out, etc., etc., may develop into the painful obsessions of the "*folie du doute*," has been stated nowhere more definitely than in a paper by Dr. Höstermann.[1]

There are ideas, he gives us to understand, which originally produced in the normal course of thought, may become *dominant* in consequence of some external causes or conditions, as, for instance, evil experiences, natural timidity, habits. . . . Careless, disordely habits, although, properly speaking, not to be reckoned among the *obsessions*, may become identified with them. The thought that the door has not been completely shut, that the match was thrown in the neighborhood of inflammable material, etc., etc., may recur often to the mind and cause a certain anxiety and unrest, whence comes a desire repeatedly to observe if the door is really shut, the match really put out. The mind in which these incipient obsessions are produced is characteristically heedless. It is incapable at the moment of any particular action of strict attention. There is,

[1] Ueber Zwangsvorstellungen, Laehr's Zeitschrift, 1885, Bd. 41, p. 25.

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therefore, the recollection of the thing done, but not of its attending circumstances.

Such heedlessness breeds accidents and their disagreeable consequences; which, in turn, may cause a fright, and, given an unusually impressionable mind, a lasting effect (*psychische Erschütterung*);[1] and by a curious reaction the particular event is ever afterward repeated with intense concentration, and fear of grievous consequences (as happened in the first case), repeated not once, but hundreds of times to verify the same fact, namely, that no harm has resulted. It is usual, indeed, for obsessions to arise suddenly. The instances in literature are now innumerable in which the curious reader may find some of great interest.[2] We can here only give a general sketch of these anomalies. A nervous woman, hearing unexpectedly of the dangerous prevalence of germs, and brooding much thereon, begins to wash her hands repeatedly, hundreds of times daily, spends hours in her room brushing her clothes, books, furniture, etc. After shaking hands with a guest she is anxious and *distraite* until they are washed again. Infection may have taken place meanwhile; and she is miserable. When walking out, if she passes anyone too near, she is afraid lest she has caught some contagion, and at once returns home to purify herself. At communion she doubts her fitness to take the sacrament. Has she, perchance, committed the unpardonable sin? (Under such circumstances the agony is very severe, even to fainting.) At table she does not pass anything for fear of infecting others.

Sometimes, forgetting, she passes a dish, and is straightway troubled by the thought that her hands may have been poisoned. Did she not touch the matches in her room before coming down? The matches are made of phosphorus, and phosphorus is a poison. Perhaps she has already poisoned somebody through her heedlessness. She would like to throw the matches away, but is afraid lest they poison somebody else. In short, everything terrifies such patients. We have even known one who was afraid to breathe, except through an apparatus, for fear of destroying the *animalculæ* which, it is said, exist in the air in great numbers.

It is a painful malady, though nothing in the experience of alienists is, perhaps, more curious and interesting. Krafft-Ebing,[1] to whom we are indebted for some of the most elaborate studies of this disorder, has given us many instances of obsessions arising from evil or shocking conditions in the life of a patient. "The most powerful causes," he says, "of imperative ideas (Zwangsvorstellungen) are impressions that intensely affect the mind and feelings by exciting ideas that persist until they become fixed in the fancy, wholly occupying it."[2] The subject of such obsessions are usually impressionable people of neuropathic constitution.

Impressions so powerful come early in the life of a patient. They are frequently made by the conditions of that life. One of the very best examples of the truth of this remark is to be found in Esquirol.[3]

In this case, a child—a little girl—wished to murder her step-mother; and had made the attempt with all the strength and passion she possessed. The idea had been produced in her mind by hearing the parents of her father discuss, somewhat too violently, the second marriage of their son. The examination of the child by Esquirol at Charenton revealed no dislike of the step-mother on any other grounds. No ill-treatment was alleged. The idea showed itself as a real obsession, with the uncontrollable impulse to murder. Esquirol paid great attention to this case, and the full report of it in his works is worthy of careful study. Such a case was formerly classed as *moral insanity*. It seems now more properly to belong to those obsessions that, given a neuropathic heredity, may develop from unfavorable moral conditions[4] (*Neurasthenisches Irresein*).[5]

A case of a milder description, in which the obsessions are distinctly of neurasthenic origin, is given by Dr. Thomsen, of Bonn. (*Archiv für Psychiatrie*, 1895, Bd. 27.) What is most interesting and apropos about this, is the fact that the patient, an intelligent lad of 16, himself described his

[1] Cf. Prof. L. Meyer: Ueber Intentions-psychosen, Archiv für Psychiatrie, 1888, Bd. 20.

The *Intentions-psychosen*, which are but conditions of neurasthenia, are probably caused in this way.

[2] Krafft-Ebing: Vierteljahrschrift für ger. Med., xii, p. 147. Beiträge, etc., Erlangen, 1867. Le Grand du Saulle. *La folie du doute.* Esquirol: Maladies Mentales. Henke's Zeitschrift, xx, p. 429. Delasiauve: Journal de Méd. Mentale, 1865, 333. Marc-Ideler, i, 166; ii, 288. Spielmann: Diagnostik, p. 499. Paul Aubry: Contagion du Meutre, 1894. Wille: Archiv für Psychiatrie, xii, 4. Cazauvieihl: Annales d'hyg., xvi, 123; and *passim.*

[1] Laehr's Zeitschrift, Bd. xxxv.

[2] Vierteljahrschrift für ger. Med., 1870, Bd. xii, p. 144.

[3] Des maladies mentales, i, ii, p. 116.

[4] Krafft-Ebing: Der Psychopathologie, p. 299.

[5] Kraepelin: Lehrbuch, p. 477. Le Grand du Saulle: La folie devant les tribunaux, p. 538.

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*étourderie* to "ill-breeding." Any attempt to correct him, any interruption of the current of his ideas in society, at home, about his avocations, would bring on a convulsive attack, such as has rarely been observed; "the eyes are turned to the right, the face twitches violently, the tongue protrudes, the foot stamps, he beats his neck with his right hand, uttering all the while abusive expressions," etc., etc.

This interesting case brings into clear relief the progression of the various stages of the disease, which, beginning in a neurotic child, from the early want of self-control, develops into incurable disorder. What better illustration is there to show the necessity of early inculcating a useful habit of restraining and curbing the passions and the excesses of the childish temperament if left to itself? And here we get a clue of no little importance, as it seems to us, to the great prevalence of neurasthenia in this country. The extreme social liberty enjoyed by the youth of both sexes is a cause of it, a social liberty that leaves the child too much to itself, rendering it impatient of control where some restraint is probably necessary to prevent the extremes of joy, grief, anger—a régime which, if continued long enough, is quite sufficient to vitiate the nervous system, to produce in it and the will the instability, the excitability combined with weakness, the alteration of the *Gemeingefühl*, that, as we have said, are fundamental conditions of neurasthenia, if properly understood.

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## THE BACTERIOLOGY OF THE HEALTHY NOSE.

THERE has been considerable divergence of view as to the presence or absence, and as to the abundance or scantiness, of microorganisms in the nose of healthy persons. Some of the investigations into this subject have been defective in failing to make a distinction between the entrance to the nasal cavity and its interior. In fact, it was for a long time assumed that the nose was a natural depository for microorganisms, but this opinion was based upon inadequate or untrustworthy evidence.

One of the first studies of the bacteria in the healthy nose was published by Jonathan Wright, of Brooklyn, in 1889, who found present a variety of microorganisms, and whose observations were confirmed by those of numerous other investigators; but none of these states that precautions were taken to avoid contamination from the vibrissæ or other structures of the nasal vestibules.

In the course of a series of researches into the bacteriology of the upper air-passages, Thomson and Hewlett[1] have determined that only exceptionally are microorganisms to be obtained from the mucous membrane of the healthy nose, the interior of the nasal cavity being in the great majority of cases perfectly aseptic. They found, however, that the vestibules of the nares, the vibrissæ lining them, and all crusts formed in them, generally swarm with bacteria. These experiments were conducted with great care, and every precaution was taken to eliminate all complicating factors and elements of doubt and to insure accuracy of result. No attempt was made to differentiate the organisms that were found present, the immediate object of the investigation being to determine their presence and numbers.

Of twenty-seven cultures made from the vestibulum naris, not one remained sterile; in three, a few colonies only developed; in three, from ten to twenty; and in twenty-one the growth was abundant. Microorganisms were found in all of fourteen cover-glass preparations from crusts or mucus; in two, they were scanty; and in twelve, abundant. Of seventy-six cultures made from the interior of the nose, sixty-four remained absolutely sterile; in seven, there was a scanty growth; in two, there were more than twenty colonies. In none of the twelve instances in which growth took place could this be called abundant, or were the colonies innumerable. Of thirty cover-glass preparations made from the nasal mucus, twenty-three showed no microorganism whatever; in five, a few organisms were found; and in two, they were numerous.

Among the whole number of one-hundred-and-fifty observations, in only three instances was there a visible quantity of dust on the nasal mucous membrane. It was found that in the rare cases in which dust is visible within the nose, it is usually deposited on the anterior portion of the septum or the anterior extremity of the middle turbinal.

The experiments from which the data recited were obtained were made upon thirteen individuals, varying in age from sixteen to thirty-six years, and who were on the whole up to the normal standard of health as regards the nose. Only seven, however, had never complained of nasal troubles. Of

[1] "Microorganisms in the Healthy Nose." Reprint, Medico-Chirurgical Transactions, London, 1895.

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the whole number, three were females and three males examined in study-air; seven males were examined in the laboratory, where they had frequently spent one or two hours before submitting to examination. Microorganisms were encountered among the latter in much larger number than among the former.

This valuable investigation from which we have so liberally quoted closes with the following summary:

In all bacterioscopic investigations of the nasal fossæ, in all researches as to the action of the nasal mucus, etc., a clear distinction must be made between the vestibule of the nose and the proper mucous cavity. The former is lined with skin and is furnished with hairs and with sudoriferous and sebaceous glands; it is not a part of the nasal cavity proper, but only leads to it. The neglect of this distinction may account for the discrepancies in previous observations on the subject. Avoidance of contamination with the lining of the vestibule is difficult even when this source of error has been realized. The dust and crusts of mucus and *débris* deposited among the vibrissæ of healthy subjects are never free from microorganisms, which are as a rule abundant. The reverse is true of the Schneiderian membrane. While microorganisms must occasionally be present here, they are, under normal conditions, never plentiful and often entirely wanting. The occurrence of pathogenic organisms must be so infrequent that their presence in the pituitary membrane must be regarded as quite exceptional.

## EDITORIAL COMMENTS.

***The Color of Sin.***—Where would we poor physicians and scientists be if it weren't for the newspapers? They are the true pioneers of scientific and medical progress nowadays, and we have all we can do to keep up with their rapid strides. One of them has just heralded a most brilliant advance, no less than an absolute physiologic test of guilt. It has discovered a scientist who has discovered that the various human emotions and passions, good and bad, each produce definite chemic secretions, which act upon the brain and cause vice or virtue, as the case may be, and are excreted by the skin in the perspiration, where they may be recognized by chemic tests. His name is Gates, and he claims to have isolated and distinguished no less than forty distinct "emotion-products." The products of evil and sinful emotions are "poisonous," while those of good and happy impulses are "life-producing" in their nature. This may in some measure account for the notoriously short lives of evil-doers, and furnishes a physical explanation of the pangs of remorse. "The worst of all these secretions is that of guilt"; and Dr. Gates' crowning discovery is that if a small amount of the perspiration of a person "suffering from conscious guilt," be placed in a test-tube and a few drops of selenic acid added, a pink color will immediately appear. Hence he is led to declare that the true color of sin is pink, and that Isaiah was merely indulging in rhetoric exaggeration when he spoke of it as "scarlet." How striking that Isaiah could come so extraordinarily close to the mark without even a test-tube to use in his experiments, and, of course, without selenic acid; and in a poetic composition, too! The Scriptural term "scarlet woman" is also found peculiarly apropos, indicating as it does a high grade of depravity. Positively another scientific verification of the verbal inspiration of Scripture!

But there is a fatal defect in this theory which does not appear to have occurred to the author, and that is that possibly these "products" themselves are the *cause* of the various emotions and their resulting virtuous or vicious action, and not the *effect*. May they not be due to some toxin or germ which attacks the body from without?

This would be something like a discovery; for then, by isolating the germ, it could be attacked in its native lair, cultures made for inoculation-purposes, and children vaccinated for murder, theft, and envy, as they are now for smallpox and diphtheria. Even if this should not be the case, as the products of the good and happy emotions are "life-promoting"—for instance, "laugh and grow fat"—why not collect them from the perspiration of happy and virtuous persons and inject them into the tissues of the criminal and the hypochondriac? May we not have here a scientific explanation of the well-known "healing-touch?" At all events, "honest sweat" has apparently not been ranked at all too high as a moral influence.

This discovery will be a great aid and comfort to the waning fortunes of the Lombroso school of criminal anthropologists, for it is just the kind of a straw upon which they love to build their most magnificent, if somewhat top-heavy, edifices. But it is a sad shock to our poetic sentiments to find that pink, which we have always somehow associated with the dawn, the moss-rose, and the blushing cheek of the sweet girl-graduate, is really the livery of sin. But such are the ruthless disillusionments of science.

***The Newspaper-doctor.***—The evils of hospitalism do not end with the direct result and the single offence. The advertising doctor and newspaper-medicine are its legitimate offspring. An Eastern city has recently suffered with an attack of acute hospitalism, and now comes the sequel. In this busy town there was a short time ago organized a new hospital, upon the staff of which was placed an irregular, not to say a disreputable, practitioner. The better men protested and declined such association, but without avail. The reprehensible selection of the board of managers of the hospital was only the beginning of worse things. In the local newspaper of a recent date, we find an advance notice of the performance "*in the presence of a number of invited people*," of a remarkable operation of "skin-grafting," in which "the skin of a Belgian hare will be engrafted upon the leg" of a patient who courageously offered himself, as a sacrifice if need be, upon the altar of science.

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A detailed account of the successive steps of the preparatory treatment and of the operation itself accompanies this announcement, and editorially expression is given to the hope that the operation will be successful, "primarily for the patient's benefit and besides for the advancement of the science and *the fame of the physicians who will engage in the operation.*" In the account of the operation in the newspaper of the following day, it is stated that the patient "was removed to the sick ward with a live hare glued to his right leg. The only other person present at the operation, beside the physicians and white-hooded nurses, was Dr. ———." The question naturally arises how, in the absence of the ubiquitous reporter, such detailed description of the procedures adopted found its way into public print—whether through telepathy, telephony, or telegraphy, or through verbal or written communication. Under any circumstances the whole business is discreditable to the individuals concerned and an affront to the profession at large. Offences of this character can only be prevented by heroic treatment.

***Business Enterprise*** is admirably illustrated in the ingenuity of the advertiser in our daily papers. Two instances have come to our notice within a week. To a big omnium-gatherum store in Baltimore belongs the honor of selling the medical service of "one of Baltimore's prominent doctors, a graduate of the Maryland University, who has practised among you for 11 years," etc. "He will accept our tickets for a visit any time you see fit to call him, day or night. We shall sell these tickets for 29 cents each. When the Doctor calls all you have to pay is the ticket you bought of us for 29 cents. These tickets are good for one year, and you can get as many as you wish to-day for 29 cents, and the Doctor will accept one ticket for each visit. It makes no matter what we pay the Doctor; you only pay 29 cents for a visit."

To Philadelphia is due the credit of another scheme. It seems to start from the doctor's office, but all the soda-water, crockery, and bric-a-brac drug-stores of the city are enumerated as filling this physician's prescriptions for 25 cents, and the "medical" man gives the "medical" advice and the "prescription" absolutely "free-gratis-for-nothing." Ponder for one minute the mental and moral conditions of these drug-store, grocery, and doctor men!

***Information is desired*** concerning the "American Association of Physicians and Surgeons." We have before us the flaming page-advertisement of a newspaper-doctor who cures Bright's disease by "his great specific," etc., and who signs himself "Vice-President" (should not the hyphen be left out here?) "of Pennsylvania of the American Association of Physicians and Surgeons." Can any correspondent give us some information concerning this medical society?

***Tuberculous and Tubercular.***—The NEWS has for several years discriminated in the use of the adjectives *tuberculous* and *tubercular*, applying the former to conditions related to the specific process, tuberculosis, and the latter to the histologic formation known as a tubercle. We are glad to find our position sustained by the *Lancet*, which makes an earnest plea for the practical adoption of this distinction, in order to insure lucidity and unambiguity of expression.

# REVIEWS.

A MANUAL OF OPERATIVE SURGERY. By LEWIS A. STIMSON, B.A., M.D., Professor of Clinical Surgery in the University of the City of New York. New (third) edition. In one royal 12mo volume of 614 pages, with 306 illustrations. Cloth, $3.75. Philadelphia: Lea Brothers & Co., Publishers, 1895.

THE arrangement of this edition is almost the same as that of the previous issue, but the additions to the book have been very numerous. Dr. Stimson has been largely aided in the preparation of the manuscript by Dr. Rogers, to whom, indeed, he has given full credit, both upon the title-page and in the preface. Among the new operations introduced in this edition are trephining for suppuration within the cranium due to middle-ear disease, puncture of the lateral ventricles of the brain, intracranial neurectomy for neuralgia, tenorrhaphy, open suture of fracture of the patella, laminectomy, the surgery of the thyroid gland, and many abdominal operations. The article on operations for the radical cure of hernia has been very much expanded in accordance with the progress in this branch of surgery. The new cuts introduced in this edition are numerous, and constitute a distinct addition to the text.

The article on the operative reduction of old luxations of the elbow is a suggestive one, and recalls the paper of Dr. Stimson on this subject, which appeared as a journal-article some years ago. The illustrations of cerebral localization taken from Starr are unusually satisfactory.

The conciseness of the descriptions may seem to some readers a disadvantage, since students and young physicians may find that it requires a certain degree of knowledge of the topics to make the methods advised sufficiently clear. So much valuable information is, however, contained in the volume, which is a small one, that the criticism, though in the main true, does not detract from the real value of this guide to operative surgery. Conciseness is so seldom found in medical textbooks that it is refreshing to find it here illustrated in its best form.

The directions for preparing aseptic materials for operations may be rather difficult for the general practitioner in country districts to carry out, but they are simple, easily understood, and avoid the elaborate details which have sometimes made antiseptic surgery a bugbear to those living at a distance from medical centers.

In this, as in all books, omissions are occasionally found of matters which it would seem ought to be included. Among these may be mentioned the omission of the use of cocain by incarceration for local anesthesia, as well as the infiltration-method of producing anesthesia advocated by Schleich. The fact that the latter is rather a new suggestion probably accounts for its not being mentioned. Less attention seems to be directed to the Esmarch method of producing artificial anemia and preventing hemorrhage than would be expected. The Petit tourniquet seems to be given an unnecessary and unwise prominence. It is almost a relic of the surgery of bygone days.

Stimson's *Operative Surgery* has always been a fa-

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vorite with us, as it doubtless has been with many teachers and students of surgery. The new edition will sustain the reputation of the book, and add to the debt which the profession owes to the author and his less well-known collaborator, to whom English-speaking physicians are also indebted for the translation of Tillmanns' *Principles of Surgery*.

PEDIATRICS, THE HYGIENIC AND MEDICAL TREATMENT OF CHILDREN. By THOMAS MORGAN ROTCH, M.D., Professor of the Diseases of Children, Harvard University. Philadelphia: J. B. Lippincott Company, 1896.

IT is to be regretted that Prof. Rotch has chosen to cast his work in the form of a series of clinical lectures, which, though affording opportunity for the presentation of an enormous amount of clinical material and illustrations of cases, has naturally called for much of the unnecessary and tiresome verbiage of the lecture-room to keep up the illusion. Presumably the book is an elaborated report of the author's lectures to his classes, for to this method of compilation we must attribute the colloquial style and not infrequent inelegancies of expression to be noted throughout the volume. Judicious condensation in the matter of clinical histories might have been employed with decided advantage, and have allowed greater space for a subject like insanity, which has evidently been slighted for want of room.

Despite these drawbacks in the literary execution of the work, there is so much valuable material presented that the professional success of the volume is assured.

The results of Dr. Rotch's original work are most conspicuously recorded in the earlier pages which cover the whole period of infancy. The Infant at Term is a notable chapter presenting briefly and concisely much valuable material to be found in no similar work with which we are acquainted. Normal Development is also noteworthy for a like reason; but it is upon the section on Feeding that the peculiar value of Dr. Rotch's book will pre-eminently depend. This subject is treated at unusual length and with masterly skill, as was to be expected from Dr. Rotch's previously well-known contributions on this branch of pediatrics. The workings of the Walker-Gordon Milk-laboratory are here fully explained, and the methods of combining milk-prescriptions are completely set forth. As an addendum to this section that on Premature Infants demands praise for its valuable data and scientific methods of dealing with this long-neglected, because imperfectly understood, class of cases. The section on the Blood in Infancy and Childhood is likewise of unusual value. It embodies much original observation and presents a comprehensive view of the present status of knowledge of the blood in diseased conditions in early life. The section on Diseases of the Nervous System and the Myopathies occupies nearly two-hundred pages and is enriched with numerous photographic reproductions from the author's own practice. The remaining sections are well done, but call for no further special mention.

From the bookmaker's point of view the volume is not up to the standard of the illustrated medical textbook of to-day. The half-tone cuts in the text, as a rule, are indistinct or are spoiled by the quality of the paper—a fact which is strikingly emphasized by the contrast afforded by a number of inserted plates in the section on diseases of the intestine, which are printed on suitable plate-paper. The colored plates also are far from accurate in their tints, though special claims are made for them in the preface. An index of 17½ pages finishes the volume. It is unnecessary to say that for a technical work of over 1100 pages the volume is totally inadequate and necessarily very incomplete.

SURGICAL PATHOLOGY AND THERAPEUTICS. By JOHN COLLINS WARREN, M.D., Professor of Surgery in Harvard University. Philadelphia: W. B. Saunders 1895.

THE work before us is a notable production. It contains some 800 pages. The illustrations are original, numerous, extremely handsome, and the book is more than worthy of them. It is evidently the product of years of patient study and laborious observation, and every line of it shows the comprehensive grasp of the scholar and philosophic thinker, and the rigid common sense of the practical operating surgeon.

The initial chapter deals with Bacteriology, and is one of the best and clearest of the numerous brief dissertations upon this difficult and most important subject. Here as elsewhere definitions are commendably brief, accurate, and clear. Hyperemia is next discussed and then Inflammation. Warren considers inflammation a condition, not a disease—not an increase of nutrition, but a diminution and perversion of nutrition, and he holds that the cellular elements of inflammation come from the cells of the part. He compares inflammation to a forest fire, which destroys but does not repair; though in its rage it carries destruction, it sweeps away also the pests which prey upon vegetation, and leaves in the ashes conditions and materials which favor a new growth of timber. Inflammation is set forth under the heads of Simple and Infective, the latter including Suppuration, Ulceration, Abscess, Fistulæ, Boils, Carbuncles, and Osteomyelitis, which last-named disease, the author truly asserts, causes most cases of necrosis. In treating extensive losses of bone from necrosis, Warren commends Schede's method (filling with a blood-clot) and Senn's method (filling with chips of decalcified bone).

In the chapter on Repair the author claims that repair need not be inflammation, but results rather from the power of renewal of undestroyed tissue. In repair cells which multiply by karyokinesis fill the leading rôle, and leukocytes play an unimportant part. Gangrene is fully considered, and Shock is studied in one of the most scientific of modern articles. The author differs from the view of Fisher and Gross that shock is a reflex vasomotor paresis, and gives adhesion to the belief of Hodge and Grœningen that it is a condition of fatigue and exhaustion of the ganglia of the cord and medulla.

The next sections deal with Fever, Surgical Fevers, Septicemia, Pyemia, Erysipelas, Hospital Gangrene, Tetanus. It is shown that the curative effects of tetanus-antitoxin do not fulfil anticipations; most reported cases are seen to be chronic cases, and the power of this agent over acute tetanus is doubtful. In the article upon Hydrophobia the truth of Pasteur's method is considered as proved. Next come articles upon Actinomycosis, Anthrax, Glanders, Snake-bite, Tuberculosis, Dis-

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eases of Bone, Tumors, Aseptic and Antiseptic Surgery. Appended to the book we find set forth the blood-serum therapy for rabies, the preparation of erysipelas-toxin, and other valuable information.

A pleasing thing about this book is its scholarly and literary flavor, a flavor too often absent in medical works. Any Warren of Harvard has given bonds to greatness, and we cannot pay the book of John Collins Warren a higher compliment than to say that it is entirely worthy of his name and of his chair.

SURGERY: A PRACTICAL TREATISE, WITH SPECIAL REFERENCE TO TREATMENT. By C. W. MANSELL MOULLIN, M.A., M.D. Oxon. Assisted by various writers on special subjects. With 623 illustrations. Third American edition. Revised and edited by JOHN B. HAMILTON, M.D., LL.D. Philadelphia: P. Blakiston, Son & Co., 1895.

IF excellence of a book may be measured by popularity, then *Moullin's Surgery* must be so classed. Two American editions have been consumed since 1891, and now we have before us a third. This, like the second edition, has passed under the able editorship of Dr. John B. Hamilton, which fact by itself is ample guarantee of the primary worth of the book, as well as of its being properly modernized and fitted for the needs of the American practitioner and student. As the work of the editor has been placed in brackets, it is easy to see to what pains he has been to render the volume as comprehensive as possible. It has been found necessary to make a very general revision of certain parts, and to add much new material and many new illustrations in order to accomplish this result. While the claim of the preface that the book is "quite up to the date of publication" (October, 1895), as "it has taken but six weeks to pass through the press," is scarcely justified by examination of certain portions, yet, upon the whole, the result of the new revision is very satisfactory, and the work is certain to retain its position in the front rank of standard surgical books for study and reference. The colored plates of bacteria and tumors are beautiful, and many of the newly added original illustrations are of great value. The volume as a bookmaker's product is notably pleasing in all respects.

THE PRINCIPLES AND PRACTICE OF MEDICINE. DESIGNED FOR THE USE OF PRACTITIONERS AND STUDENTS OF MEDICINE. By WILLIAM OSLER, M.D., Fellow of the Royal College of Physicians, London; Professor of Medicine in the Johns Hopkins University and Physician-in-Chief to the Johns Hopkins Hospital, Baltimore, etc. Second edition. 8vo., pp. xviii, 1134. New York: D. Appleton & Co., 1895.

THE favorable reception accorded Osler's *Practice* and the exhaustion of a large edition within three years speak more forcibly than any written commentary. The book is one of the most meritorious recently published, and its worth is the basis of its popularity. The numerous changes that have been found necessary in the revision indicate the rapid strides that have been made and are constantly making in the domain of medicine. Sixty-five pages have been added to the text, and the illustrations have been increased six in number. The article on Typhoid Fever has been thoroughly revised and amplified. Of the Brand bath it is said that it "has steadily advanced in favor both in hospital and private practice, and in spite of the difficulties and the unpleasant features necessarily connected with it there is no plan of treatment which gives such results. In the hospitals which carry out a strict hydrotherapy the death-rate is about 7 per cent., while in other institutions the death-rate is from 10 to 15 per cent." The article on diphtheria has been almost doubled in length and materially modified. Recent additions to our etiologic knowledge have been incorporated, and the antitoxin-treatment has received due consideration. Extensive changes have been made in the articles on septicemia and pyemia, and the subject of malarial fever has been largely rewritten. Entirely new sections devoted to the bubonic plague, and to foot-and-mouth disease, have been added, and the whole group of infectious diseases has been brought up to date. Descriptions of infantile scurvy, of hemorrhagic diseases of the newborn, of eczema of the tongue, of buccal leukoplakia, of affections of the mesentery, of anuria, and of parasitic infusoria have also been added. The section on diseases of the nervous system has been elaborated by new text and helpful diagrams. In fact, alterations and additions have been made throughout the book wherever these were rendered necessary by the increasing changes and developments of medical progress, and the result has been to keep the work in the front rank of text-books for the student and of reference-books for the practitioner.

PHYSIOLOGY PRACTICUMS. EXPLICIT DIRECTIONS FOR EXAMINING PORTIONS OF THE CAT; THE HEART, EYE, AND BRAIN OF THE SHEEP, AS AN AID IN THE STUDY OF ELEMENTARY PHYSIOLOGY. By BURT G. WILDER, B.S., M.D., Professor of Physiology, Vertebrate Zoology, and Neurology in Cornell University, etc. Second edition, revised, with thirty figures. Published by the author. Presses of the Ithaca Journal, 1895.

SINCE physiology has become an experimental science, based largely on the facts of anatomy, it is highly desirable that all medical students, at the very beginning of their college-work and before entering on the study of physiologic phenomena, should be familiar with the general plan of organization of the human body. Inasmuch as this, at present, is impracticable, the study of the structure of some highly specialized animal-form should be insisted on as a necessary prerequisite. No animal presents so many advantages for a preliminary study in human anatomy as the cat; a practical acquaintance with the structure of this animal will afford the necessary data for a comprehension of the fundamental facts of physiology. To assist the student in this preparatory work, Prof. Wilder has, in his *Physiology Practicums*, given explicit directions for the examination of portions of the cat and of the head, eye, and brain of the sheep. It is safe to say that if the directions given by Prof. Wilder are faithfully followed the student will receive the best possible preparation for the subsequent study of human anatomy and for the comprehension of physiology. A teaching experience of twenty-five years has enabled Prof. Wilder to present

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the subject in the most concise, explicit, and attractive manner, so that the student will have no difficulty in the conduct of his investigations. Every medical student at the beginning of his studies should provide himself with a copy of the *Practicums*, and conscientiously proceed to familiarize himself with its contents. The knowledge thus obtained and the technic acquired from this systematic dissection of the cat will be of inestimable value to the student in all his subsequent studies of anatomy and physiology. We are indebted to Prof. Wilder for this admirable guide, and trust that in the reorganization of the methods of education in our medical schools this preliminary work, as formulated by him, shall be regarded as an essential part of the curriculum.

A GUIDE TO THE PRACTICAL EXAMINATION OF URINE, FOR THE USE OF PHYSICIANS AND STUDENTS. By JAMES TYSON, M.D., Professor of Clinical Medicine in the University of Pennsylvania, etc. Ninth edition, revised and corrected, with a colored plate and wood engravings. 8vo, pp. 276. Philadelphia: P. Blakiston, Son & Co., 1895.

GUIDE POUR L'EXAMEN PRATIQUE DE L'URINE, ETC. Par le DOCTEUR JAMES TYSON. Huitiéme edition, revue et corrigée. Traduction de MM. E. GAUDRELET and A. S. CLARKE. Large 8vo, pp. 170. Paris: Société d'Editions Scientifiques, 1895.

WE can perhaps scarcely do better in detailing the reasons that have rendered necessary nine editions of this well-known and very useful manual than to quote from the preface to the French translation of the eighth edition which appears almost simultaneously with the ninth American edition: "Among the few publications in English devoted exclusively to urine-analysis the *Guide to the Practical Examination of Urine, for the Use of Physicians and Students*, by Professor Tyson, of Philadelphia, by reason of its success in America and England—having passed through eight editions—commends itself favorably to the attention of the French medical profession. . . . By reason of the minute details into which the author enters in his description of analytic processes the work is a most excellent one. The simplicity of the methods described give to the work a practical value. The examination of urine from the chemic, physical, and physiologic points of view is treated as completely as possible in the limits of a manual intended for physicians and students. Practising physicians will find of value the succinct but lucid portrayal of the differential diagnosis of diseases of the kidney." Not many changes have been necessary in this ninth edition, and the work remains, as it has long been, a trustworthy and complete presentation of the subject with which it deals and a reliable guide in urine-analysis to the student and physician.

DIET IN SICKNESS AND HEALTH. By MRS. ERNEST HART, with an Introduction by Sir HENRY THOMPSON, F.R.C.S., M.B. Lond. 8vo., pp. 219. London: The Scientific Press, Limited, 1895.

THE author of this book, who is the wife of the distinguished editor of the *British Medical Journal*, and who is well-known for her interest and activity in behalf of the Irish people, has been a student of the Faculty of Medicine of Paris and of the London School of Medicine for Women, and has already made a number of contributions to the literature of physiology and pathology. She thus comes well equipped to the performance of her present task. Within the limits that she has allowed herself, Mrs. Hart has succinctly laid down the principles of digestion and nutrition, and indicated the lines along which a suitable dietary is to be selected, both in the prevention and in the treatment of disease. Extended consideration is given to the diet of diabetes and to that of gout, and in many places explicit directions are given as to the preparation of various articles of food and various food-combinations. The book is written in a pleasant and entertaining style and printed in clear, legible type, and should realize the hopes of its author in proving "useful to those who are sick and to those who have to nurse, feed, and prescribe for the sick, and that it will aid the healthy to preserve health."

PHYSICIANS' VISITING LIST FOR 1896. LINDSAY & BLAKISTON. Philadelphia: P. Blakiston, Son & Co.

CONCERNING this well-known visiting list the publishers mention several improvements in the new edition for 1896. More space has been allowed for writing the names and to the "memoranda page." A column has been added for the "amount" of the weekly visits, and a column for the "ledger page." The reading matter and memoranda pages have been rearranged and simplified. The lists for 75 and 100 patients will also have a special memoranda page as noted, and hereafter will come in two volumes only, dated from January to June and from July to December. This does away with the risk of losing the accounts of a whole year should the book be mislaid.

THE MEDICAL RECORD VISITING LIST OR PHYSICIANS' DIARY FOR 1896. New York: William Wood & Co.

CONCERNING this excellent book the preface says: "It has been revised to increase the amount of matter calculated to be useful in emergencies and eliminate such as might better be referred to in the physician's library. The most important change is in the list of remedies and their maximum doses in both apothecaries' and decimal systems, and the indication of such as are official in the United States."

## NEWS ITEM.

***Rush Monument Fund.***—Dr. George H. Rohé, Secretary and Treasurer of the Rush Monument Committee, acknowledges the following additional subscriptions:

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